No. 2

Japan International Cooperation Agency (JICA)

National Development Planning Agency (BAPPENAS)

THE SUPPORT PROGRAM

FOR

AGRICULTURE AND FISHERIES DEVELOPMENT

IN

THE REPUBLIC OF INDONESIA

FINAL REPORT
SECTOR ANALYSIS

JUNE 2005

Nippon Koei Co., Ltd.

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PREFACE

In response to a request from the Government of the Republic of Indonesia, the Government of Japan decided to conduct a Study on the Support Program for Agriculture and Fisheries Development in the Republic of Indonesia and entrusted the Study to the Japan International Cooperation Agency (JICA).

JICA selected and dispatched a Study Team headed by Mr. Makoto ISHIZUKA of Nippon Koei Co., LTD. between May, 2002 and June, 2005.

The Team held discussions with the officials concerned of the Government of the Republic of Indonesia and conducted field surveys at the Study area, and prepared this final report.

I hope that this report will contribute to the development in the agriculture and fisheries sector and to the enhancement of friendly relationship between our two countries.

Finally, I wish to express my sincere appreciation to the officials concerned of the Government of the Republic of Indonesia for their close cooperation extended to the Study.

June 2005

Etsuo Kitahara,
Vice-President
Japan International Cooperation Agency

Mr. Etsuo Kitahara
Vice-President,
Japan International Cooperation Agency
Tokyo, JAPAN

June 2005

Letter of Transmittal

Dear Sir,

We are pleased to submit herewith the final report for "The Support Program for Agriculture and Fisheries Development in the Republic of Indonesia".

In this Support Program, the Sector Analysis was conducted to identify the development issues of the sector based on the studies of socioeconomic conditions of the country, and to clarify the direction of Japan' cooperation. Taking the direction into account, the Action Plan was formulated and updated, which identified draft of individual projects, based on the current direction of Japan's cooperation to the agriculture and fisheries sector in Indonesia from 2003 to 2005.

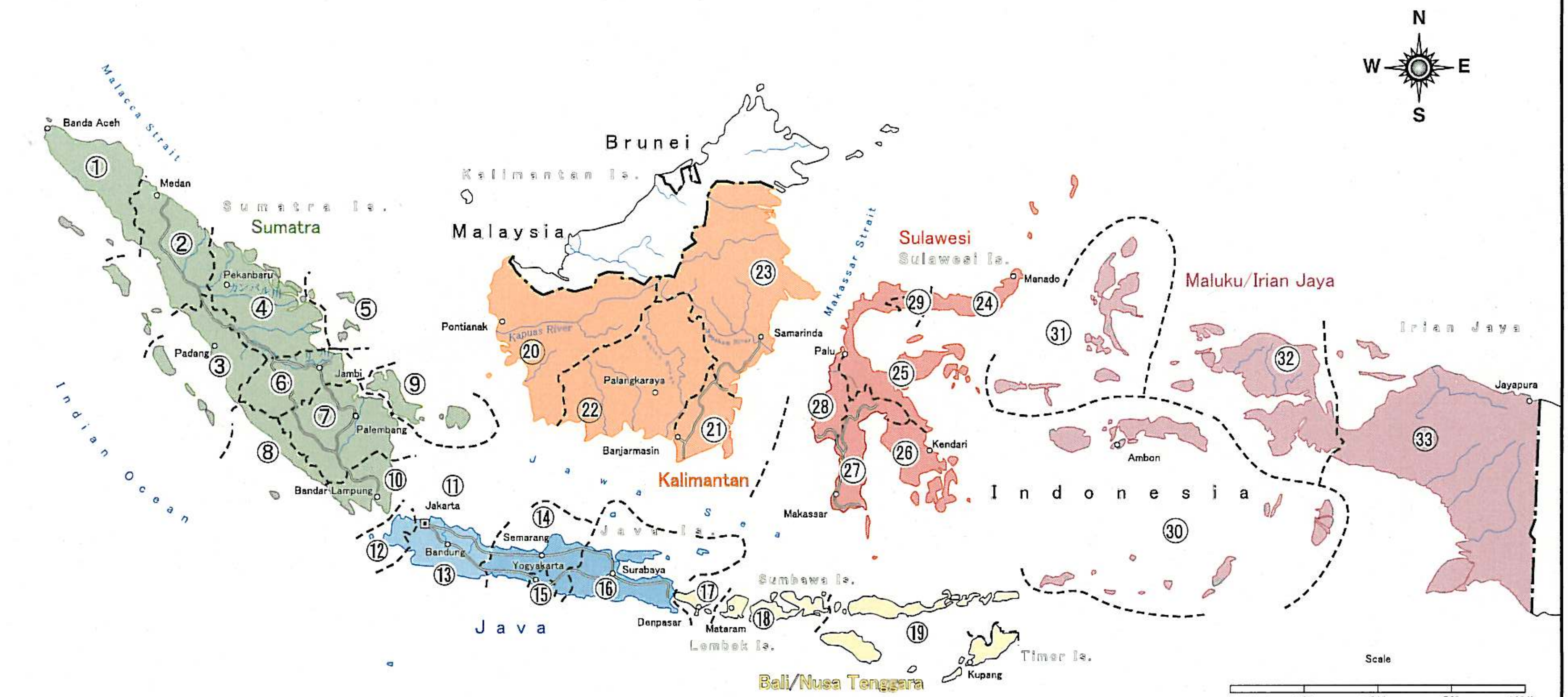
The Support Program was carried out in two phases. The Phase 1, carried out during the period from May 2002 until the middle of December 2002, aimed to conduct out the Sector Analysis, and formulate the Action Plan through the agreement between Japanese and Indonesian sides. The Phase 2, which was carried out from 2003 to 2005, i) revised the Sector Analysis for each year to obtain and understand updated information on the agriculture and fisheries sector; ii) collated and analyzed the information from monitoring activities for the projects of the Action Plan; and iii) revised the Action Plan in a timely and appropriate manner with these two kinds of information.

We hope that this report will assist National Development Planning Agency (Bappenas) and relevant agencies in the development of the agriculture and fisheries sector. It is also our sincere hope that this report will contribute to foster a long lasting partnership and friendship between the two countries of Japan and Indonesia.

Finally, we wish to express our sincere appreciation to the staff members concerned from your Agency, the Ministry of Foreign Affairs, the Ministry of Agriculture, Forestry and Fisheries, and Japan Bank for International Cooperation (JBIC) for their continuous support throughout our activities in Japan. Our highest gratitude goes to the personnel concerned in the Embassy of Japan for Indonesia, JBIC representative office in Jakarta, your office in Indonesia, the JICA individual experts concerned, and relevant agencies of the Republic of Indonesia for their cooperation extended to us during our fieldwork during the Support Program.

Yours faithfully,

Makoto ISHIZUKA
Leader for the Study Team



Legend

Province

①Aceh	⑪Jakarta	㉑South Kalimantan	㉛North Maluku
②North Sumatra	⑫Banten	㉒Central Kalimantan	㉜West Papua
③West Sumatra	⑬West Java	㉓East Kalimantan	㉝Papua
④Riau	⑭Central Java	㉔North Sulawesi	
⑤Riau Island	⑮Yogyakarta	㉕Central Sulasewesi	
⑥Jambi	⑯East Java	㉖Southeast Sulawesi	
⑦South Sumatra	⑰Bali	㉗South Sulawesi	
⑧Bengkulu	⑱West Nusa Tenggara	㉘West Sulawesi	
⑨Banka-Belitung	⑲East Nusa Tenggara	㉙Gorontalo	
⑩Lampung	⑳West Kalimantan	㉚Maluku	

- National Border
- Provincial Border
- Road
- River
- Capital
- Provincial Capital

The Support Program for Agriculture and Fisheries Development in the Republic of Indonesia

Summary

1. SOCIOECONOMIC CONDITIONS IN INDONESIA

Present Economic Condition

1.1 The Indonesian economy has recovered from the Asian economic crisis in 1997, and by 2000 all the sectors of the economy achieved positive growth rates in the real term. However, the GDP per capita in 2002, which was equivalent to U.S.$819, was still 80% of GDP per capita in 1995 (U.S.$1,038). Some economic indicators, such as foreign and internal investments, are still lower level than those before Asian economic crisis. The recovery of Indonesian economy is thus still underway.

1.2 The agriculture, forestry, and fisheries sector occupies 16.6% of the total GDP of the economy in 2003 (Rp.1.79 quadrillion), which is the second largest share, following that of the manufacturing sector (24.7%). This sector employs about 46% of the total working population. Export from the sector, including processed goods, was valued at U.S.$10.0 billion in 2003, which is equivalent to 16% of the country's total export earnings of U.S.$61.1 billion. The sector plays an important role in the Indonesian economy, producing 16.6% of the GDP, providing employment opportunities and earning foreign currency. However, it should be recognized that the sector is performing with low economic growth and facing a number of difficulties, as described in Chapter 3 in this report.

Present Financial Situation

1.3 In analyzing the state finance of Indonesia, the major issues are 1) external public debt, 2) external private debt, 3) domestic public debt, 4) scarce lack of subsidies, and 5) financial decentralization. The total amount of the external public and private debts was U.S.$140.7 billion at the end of December 2003, which is around 70% of the GDP in 2003. With the cutoff of subsidies, the cost of fuel will increase, raising bus fare and the gas rate. In the decentralization of the finance, the critical issue is whether the local government can efficiently use authority and funds given by the decentralization policy. Moreover, there is discourse over their capability of receiving and managing loans from international agencies and donors. Facing the serious problem of external debts, the GOI plans to reduce the amount of foreign loans. These serious economic and financial conditions in Indonesia force the GOJ to consider effective ways to cooperate with the country.

Present Condition of Poverty

1.4 The population below the poverty line rapidly declined between the mid-1970s and 1996, one year before the economic crisis. In 1996, the number of poor was 22.5 million, which represents 11.3% of the total population in Indonesia. But the Asian crisis had a negative impact on the people: the poor population increased up to 37.5 million, 18.2% of the total population (proportion of poor population in 2003 is 17.4% of total population). From the food and agricultural viewpoints, the expansion of income differentials between urban and rural areas, low fulfillment of basic human needs such as education, nutrition and medical services and incomplete basic infrastructures are deemed to be major causes for the poverty. Malnutrition, which can be attributed to poverty, is another problem, as can be seen in the high mortality rates of infants and maternity. Rural development is clearly of great importance as a measure for poverty alleviation.

Present Situation of Decentralization

1.5 With the enforcement of two laws in January 2001, decentralization is in progress of implementation. Under these laws, the major functions of the central government are limited to five fields (i.e., international relations, national defense/security, justice, finance and religion) and other fields such as national development planning at the macro level, development management policies and natural resource management. Other authorities have largely been transferred to districts (Kabpatens) and cities (Kota). Accordingly, it is required that regional promotion and development be implemented by the initiative of regions based on its diversity, not through central initiation as in the previous system.

1.6 With decentralization, a number of public servants, facilities, and archives have been transferred from the central government to regional ones, and this transformation was largely completed by September 2001. With these turnovers, almost 2 million of the public servants were transferred to the regional governments. While the transferal of the facilities and public servants has been conducted smoothly, several problems still remain such as the excess number of the personnel in the regional governments and incapability of the local government to conduct various services. Moreover, there was the inconsistency between the Law No. 22 “Regional Governance” and other regulations related to decentralization. Therefore, the two laws were revised through the wide discussed across the country, particularly on the direct election of regional heads, strengthening of the roles in the provincial government, increase of general allocation fund (DAU), etc.

1.7 Above all, the capacity building of local staffs is considered as the bottleneck in the process of decentralization, thus resulting in inefficient and ineffective provision of local governments’ services. In the services provided by agriculture and fisheries sector, the followings major issues are to be considered.

1) The level of services for extensions is diverse between the respective districts, as they perceive different needs for and importance of agricultural extensions according to their development strategies. In this situation, the MOA is seeking a system that provides rational extension services with nation-wide balance and standard. In addition, some facilities managed by the Ministry have been transferring to the local government in the fields of research and

agricultural education. In some cases, O&M of these facilities are affected by insufficient budget allocation.

2) For O&M of irrigation facilities, new Water Resources Law No. 7/2004 was enacted and the policy is changed to participation of WUA in O&M and rehabilitation. The government is preparing the new Government Regulations and Ministerial Degrees for implementation of new law.
3) As for fishery, the MMAF has formulated the government policy for marine and fisheries resource management. However, most of the local governments are not able to allocate their budget for the implementation, and difficult to implement the policy.

Economic Globalization

1.8 With the establishment of the AFTA on January 1, 2002, GOI is to take part in the regional agreement of free trade. Under the agreement, known as the CEPT scheme, the ASEAN members reduced tariff rates by 0-5% by 2003. Furthermore, the AFTA aims at removing all tariffs in the agreement region by 2010 (for new members of Cambodia, Laos, Myanmar, and Vietnam, by 2015).

1.9 In addition to the AFTA, there are other regional and global agreements, which involve Indonesia (i.e. those based on the APEC and WTO regimes). The country is therefore towards globalization of the economy. The economic globalization requires GOI to eliminate trade barriers directly, and to indirectly gain comprehensive competitiveness in production, processing, and marketing for strategically significant sectors. This applies to the agriculture and fisheries sector of the country.

2. SECTOR ANALYSIS

Agriculture Sector

2.1 As regards the land use, the critical issues are illegal cultivation and unplanned conversion of land area. Illegal agricultural activities are observed in some estate crop areas and forest reserves. Although illegal cultivation has been reported before decentralization, this cultivation is expanding under the process of decentralization. Furthermore, over-population and leftover farm, etc. are difficult subjects in relation to land use. Unplanned land diversion is a complex problem from the viewpoints of stable supply of food and environmental conservation. In addition, the economic gap between urban and rural areas is expanding. These social circumstances in turn have a major influence on the social environment of rural areas. At present, in some provinces, the BAPPEDA plans the land use. In reality, however, the use is not consistent with the plan. Therefore it is necessary to rehabilitate the land law and other relevant laws and regulations, and also promote implementation of a systematic land use plan that operates adequately. In terms of promotion of land use plan, it is necessary to establish harmonized countermeasures, considering sustainable agricultural development, natural environment conservation, etc. and the social environment concerning population issues, etc.

2.2 With regard to agricultural production, it should be noted that the low farm-gate prices and the high prices of inputs resulting from the removal of the subsidies make it difficult to ensure profitability from agriculture. Relating this, the increasing rates of a unit yield of main crops (e.g., rice, soybeans, cassava, and sweat potato) have been low in recent years. Future development should focus, therefore, on 1) promoting the right crop for the right land with the introduction of cash crops in order to ensure profitability; 2) the dissemination of adequate technologies and provision of access to credits; 3) improving the quality of agricultural commodities with the attention to various practices, e.g., the use of agrochemical and the implementation of IPM, sustainable agriculture and environmental conservation; and 4) ensuring cross-sectional cooperation in the MOA for support services such as research and extension, credit, and marketing.

2.3 The livestock sector in Indonesia can be divided into two types, namely, the local resources based small-scale industry, and the imported feed and breeding stock based livestock industry (including the large scale commercial-based industry). The large-scale industry, which relies on imported inputs, suffered during the economic crisis due to the high price of imported feed material. In the light of the above situation, it is necessary to promote small holder livestock development based on local stock raising and feed with the objectives of vitalization of rural economy and the alleviation of poverty. Subjects for promotion of local resources based livestock industry are 1) shortage of feed resources for livestock, particularly in Java, 2) inadequacy of the animal health system, and 3) insufficient livestock production and management technique.

2.4 Of the agricultural infrastructures, irrigation facilities are the most important for stable food supply. In Java, 30,000 to 50,000 ha of irrigated paddy fields are annually converted to urban areas or industrial areas. In off-Java, the same process is reported in the surrounding areas of large cities. With decentralization, the O&M of irrigation facilities have been handed over to the regional governments of provinces, districts, and cities. However, regional governments are unable to ensure the proper functioning for O&M due to deficiencies in institutional systems, capable staff and budget. This prevents equitable distribution of irrigation water at tertiary block level, and farmers are not able to make use of the irrigation water. Consequently, farmers are not willing to pay irrigation service fees, and WUAs have no financial resources to enable proper management. This situation, in turn, leads to insufficient O&M, resulting in a vicious cycle which gives rise to the mal-functioning of irrigation facilities and increased cost of rehabilitation. Other reasons that WUAs are not active are the lack of training system, low organizational functionality, and non-transparency of financial operation. The subjects to be considered in the future are 1) the establishment of mechanism at regional government level for proper rehabilitation and O&M works for the existing irrigation facilities, 2) review of O&M systems together with formulation of a practical rehabilitation plan, 3) the improvement of irrigation system with the initiative of beneficiaries, 4) the promotion of small-scale irrigation development in rural areas with low rainfall and low productivity, and 5) the prevention of the conversion of irrigated paddy fields.

2.5 With the aim of transferring the O&M works at the tertiary block level to WUAs for the efficient use of water and lessening the financial burden of O&M, GOI formulated the IOMP in 1987. However, the result of its implementation has not been to the government's satisfaction in many irrigation schemes, and progress with the establishment of WUAs has been slower than the government's expectations. New Water Resources Law was enacted in March 2004 changes the frame work of irrigation O&M and rehabilitation form turn over to WUA to participation by WUA, and the necessary institutions are under preparation for implementation of new frame work. Countermeasures against these difficulties are 1) training local government staff and other stakeholders in order to improve their technical and management ability for O&M; 2) the establishment of a mechanism for the rehabilitation of laws and regulations on irrigation development, O&M and rehabilitation works; 3) the formulation of a proper O&M system and the promotion of participation of WUAs in irrigation O&M and rehabilitation; and 4) strengthening the WUAs.

2.6 The analysis for the marketing of agricultural products was conducted for each product, covering all stages of distribution from the farm gate to consumers. As a result, the subjects for development are as follows. 1) The wholesale markets of agricultural products are generally old, congested and unhygienic, in addition to the daily occurrence of dead stock, all of which increases post-harvest losses. Thus, hygienic and efficient management of the market is needed. 2) As many constraints exist to the realization of transparent trade and fair price formation, the effective institutional framework governing wholesale markets and relevant distribution systems need to be thoroughly reviewed and improved. 3) Farmers have difficulty in accessing market information. A wide-ranging and effective market information network should be established between farmers and consumers. 4) Many small-scale farmers rely on traders for support with funds and inputs, weakening their bargaining power. Collective marketing by farmers' group may be an option for improvement. 5) Sizable losses occur at every marketing stage, and accordingly full study needs to be conducted to clarify the situation for reduction of losses.

2.7 As regards the extension service, with decentralization each district plans and conducts its own policies. The subjects to be considered in the future are as follows: 1) to accurately evaluate the current situation and thus systematically re-formulate the framework for overall extension activities, with consideration given to decentralization; 2) to implement effective and efficient education and training given limited staffing and shortage of budget; and 3) to examine a) extension, education, training, and research systems to promote agribusiness and b) a mechanism to reflect needs from the village in education, extension, and research and development systems to develop sustainable agriculture in line with decentralization and other changes in rural environment.

2.8 There are two main types of credit, i.e., KKP and P4K. Compared to P4K, KKP offers a wider range of credit amounts. In principle, however, KKP applies only to production activities in the agriculture and fisheries. Moreover, it takes a considerable amount of time to complete the procedure, and cases may arise in which credit is not available in time. On the other hand, P4K is the micro finance for various activities of marginal farmers and fishermen. However, the upper ceiling of credit amount in the initial year is around Rp.300,000, which is not sufficient for certain agribusiness. For the future, 1) financial schemes for initial investment and operation funds for agribusiness should be urgently established; and 2) credit schemes to meet various needs in regional circumstances should be established with the introduction of further education and training for operation of those schemes.

2.9 With the initiative of the government, the KUD is requested to play the role of a business center in rural areas, occupying the monopolistic position in rural economy. However, it was found that many KUDs had limited capacity in the management of finance and facilities and that the service level did not meet the needs of local peoples. With this background, the President Decree No.18 was issued in 1998 to prohibit the monopolistic activities of the KUD and allow the people to establish a new cooperative (Koptan) with the minimum membership of 20 persons. Despite the increasing number of the newly-established cooperatives, most of them are still immature organizations without sufficient facilities and staff for management. Furthermore, due to the smallness of scale, they are neither able to enjoy scale merits in sale and purchase, nor to guarantee the quality standard and stock. For development in the future, it is necessary to clarify 1) the features of farmers' organizations such as KUDs, Koptans, Kelompok Tanis, and 2) the policy framework and actions for strengthening farmers' organizations. It is also necessary to 3) promote the understanding of the necessity and merits of cooperatives, and 4) to conduct agribusiness activities (purchasing farm inputs and marketing aspect including marketing information, processing and distribution of product) of cooperatives within the context of regional characteristics and with the positive participation of cooperative members.

2.10 Agribusiness includes activities ranging from input-oriented (or upstream) businesses such as seed production, fertilizer and the agricultural machinery industry to output (or downstream) activities such as marketing. The ministries relevant to the agribusiness are the MOA, the MMAF, the State Ministry of Cooperatives and SMEs, and the MOIT (currently divided into MOI and MOT).

The MOA is responsible for the production of agricultural raw materials; the MMAF for fishery raw materials; the State Ministry of Cooperatives and SMEs for farmers' and fishermen' organization; and the MOIT (currently divided into MOI and MOT) for the processing of agricultural and fishery raw materials. The subjects for development of agribusiness are 1) intensification of agribusiness intelligence, 2) improvement of regulatory and business environment, 3) the rehabilitation of credit scheme for SMEs, 4) the enhancement of micro-credit for small-scale farmers and fishermen, and 5) improvement of education and training system to develop human resources in local areas.

Fisheries Sector

2.11 The fisheries sector plays an important role in food balance in Indonesia, particularly with regard to protein intake. The annual production has increased from 3.35 million tons in 1991 to 5.21 million tons in 2002 (a 65% increase for the 11 years). The consumption has also increased from 2.32 million tons in 1991 to 4.15 million tons in 2002 (a 79% increase for the 11 years) with a rise in the per-capita consumption (54% during the 1991-2002 period). Thus the demand and supply of fishery products have been increasing, revealing the importance of the fishery in food balances.

2.12 With respect to policy and institution for fisheries development, 1) the responsibilities of central and regional government relating to fishery resources management following the decentralization must be clarified by law and institution. The central government then needs to prepare a guideline for fishery resources management implemented by province. 2) The guideline is important to clarify a national direction for guidance, enhance ability of regional autonomies' staff and prepare fishery resources management system in coastal communities. 3) It is necessary to strengthen an institution and system for controlling fishing. Moreover, 4) it is important to establish a legal framework and regulations for measures necessary for management and technical support on the sustainable development of aquaculture. 5) With regard to aquaculture, public sector should take necessary measures such as restriction of area for the culture, number and size of setting net cage, allowable number of fish in the cage, licensing, controlling of feeding and prescribing, system for environmental monitoring and expenditure of necessary social cost. 6) As for extension service given to aquaculture farmers, technological and managerial know-how enables them to produce high quality fish with low cost and 7) preparation of guideline for aquaculture, which shows rearing techniques and reduces bad effects to natural environment, is also indispensable.

2.13 As regards the fishery extension, the extension workers are now employed by the respective districts as a result of decentralization. Hence, fishery extension services depend on the financial situation and the development priorities in each district. However, it is necessary, to a certain extent, to standardize the operation guideline, the content of services, and the level of technical skills of extension workers. Thus, it will be important for the MMAF to establish directions for the education of fishery extension workers in the district, so that practical extension systems will be maintained. In addition, in the field of fishery education, it is a crucial to secure sufficient number of teachers having capabilities to deal with the curriculums, which MMAF has improved in accordance with social needs for resources management, environmental conservation, rural development in coastal and remote islands, improvement of the quality of fishery products, and hygiene management. It is also important to provide academic teaching materials, teaching tools and equipment for the implementation of new fishery education.

2.14 In some areas, fishery resources' utilization is above the maximum sustainable yield, especially in Western Indonesia, because the number of artisanal fishermen and fishing efforts has been increasing. To cope with the problem, it is necessary to 1) prepare a guideline by central government for fishery resources management and the directions for the management of regional and local governments; 2) support community-based fishery resources management form the aspects of both software (e.g., information and financial services) and hardware (e.g., improvement of fish landing places) in order to promote fishermen's organizations and vitalize their economic activities; 3) give priority to the community development of remote islands in Eastern Indonesia, where many poor fishermen live without alternative income sources other than fishing; and 4) instruct and educate fishermen on basic technology of on-boat fish handling and the relationship between fish quality and sanitary improvement and economic value.

2.15 For freshwater aquaculture, it is generally difficult to run the aquaculture business in a sustainable manner, since many fish farmers are poor and artisanal with limited capital and skills. Therefore, it is necessary to support for organizing fish farmers and strengthening extension system. Moreover support systems are needed for aquaculture such as extension services, micro credit, etc. In mariculture, seaweed and growing-out are major productions at present. Though seed production technology of groupers has been gradually secured, there are still problems in rearing techniques harmonizing with environment and business operational technology. Therefore, it is necessary to prepare legal framework for utilizing open water in sustainable manner. The government target for expansion of mariculture is excessive. More detailed studies are needed from the viewpoints of economy (e.g., market demand and supply of finance, policy and institutional systems, and technology (e.g., aquaculture management and rearing technique. Finally, the management of public seed production centers for freshwater fish was transferred to provinces and districts due to the decentralization. However, many centers are not running well because of shortages of finance and human resources. It is therefore necessary to review the necessities of these centers and restructure of the systems for operation and maintenance.

2.16 Quality control, processing and distribution are important aspects of fishery production. The basis of the distribution of fishery products is fresh fish. Accordingly, enlightenment and education are necessary for artisanal fishermen, trainers, retailers, etc., in such area as improved fishing techniques and proper handling with ice. As an incentive to carry out these measures, support programs that produce benefits of using the landing site and providing the environment for the investment are necessary. Other subjects include the improvement of the distribution system for fishery products by reviewing the role and function of the local wholesale market.

2.17 Finally it is necessary to encourage and support the establishment of fishermen's organizations, and give them guidance for proper organizational and financial management. It is also required to increase the number of local financial institutions and to provide various credit schemes in order to enable artisanal fishermen to get more financial resources. It is also necessary to assist fishermen in diversifying income sources through fishermen's organizations, so as to reduce their heavy dependence on traders.

3. ECONOMIC DEVELOPMENT PLANS AND PRESENT CONDITIONS OF INTERNATIONAL COOPERATION FOR THE AGRICULTURE AND FISHERIES SECTOR

3.1 In the GBHN (1999-2004), the principal direction for agriculture and food security in Indonesia is stated as developing a food security system that is based on the diversity of food resources, social institutions and local cultures as a part of the effort to ensure the availability of food and nutrients in adequate quantity and quality at affordable prices without disregarding the incomes and welfare of farmers and fishermen. In the PROPENAS, the reinforcement of good governance with the transparency and democratization of politics, the participation of people and decentralization has received the highest priority as an issue to be tackled. In this background, the role of the government is to focus on the enactment and facilitation of laws and regulations for those implementing projects. And the services provided by the government are to be focused concentrically on market institutions, technology development, extensions, finance, and the development of important natural resources.

3.2 The international donors such as ADB and the World Bank have changed their approach to the development of Indonesian from the approach to a particular sector (e.g., agriculture and fisheries) to the sector-wide approach according to a particular issue (e.g., poverty alleviation, natural environment conservation and rural development). For instance, in the current Country Strategy and Program and its Update 2004-2006 prepared by ADB, the focuses are on 1) improvement of governance and strengthening of the capacity for long-term sustainable development through legal and judicial reform; 2) meeting to the local need through decentralization and identify local development partners that prioritize good governance and poverty reduction; 3) human development by improving the provision of social services and access by the poor to them, particularly in education and health, and addressing gender equalities, especially local level; 4) Mainstreaming of environment management and encouragement of sustainable use of natural resources; and 5) increase of the potential for poverty-reducing growth through investments in infrastructure, strengthened corporate governance, and expanded private sector development. Thus although the agriculture and fisheries sector is related to these areas, the approach is to social development, poverty alleviation, and natural environment issues.

4. EXAMINATION OF COOPERATION COMPONENTS

Basic Concept of Japan's Cooperation for the Agriculture and Fisheries Sector in Indonesia

4.1 In recent years, the international environment surrounding Indonesia has been changing rapidly. The international agreement under the WTO regime and the regional one under the AFTA have brought about economic globalization with the tendency of making the role of the government relatively small and that of the market economy more important in achieving development. On the other hand, with the domestic change of decentralization, the local government in a district or city has come to play an important role in planning and implementing policy in the agriculture and fisheries sector. Moreover, in line with this global movement for poverty alleviation, Japan has set the issue of poverty as an important target in its medium-term cooperation policy. The GOI also gives priority to the alleviation of poverty in PROPENAS, with the view that the development of rural farming and fishing villages leads to the reduction of the poverty as well as to economic growth (An Approach to Macro Food Policy, BAPPENAS, 2001). In the new national development plan (RPJM) formulated in 2005, this priority is also given.

4.2 Under the circumstances, JICA conducted the Assistance Strategy Formulation Strategy two major issues were selected. They are "Stable Food Supply and Improvement of Nutrition" in terms of the macro economy and "Raising Income of Farmers and Fishermen and Vitalization of Rural Economy" from the viewpoint of private economy. The former issue was classified into two aspects, namely the aspect of policy and institutional reform and production supporting services, and that of improvement of production infrastructures. And together with the fisheries sector which regards the sustainable use of limited resources as important, three programs were formulated under this issue (Program for Improving the Institution and Production Support System of Agriculture and Fisheries, Program for Improving the Function of Agricultural Infrastructure and Sustainable

Operation and Maintenance, Program for the Sustainable Utilization of Fishery Resources). The contents of the latter issue were examined from two aspects: i) promotion of economic activity in agricultural and fishing villages; and ii) improvement of economic systems to connect the economic activities of villages to the regional economy, then two programs were set for this issue (Program for Promoting Community-based Economic Activities in Agriculture and Fisheries, and Program for Improving and Strengthening Markets for Agriculture and Fishery Products).

4.3 With this background, the Support Program formulates the cooperation components for the five cooperation programs (i.e., 1) Program for Improving the Institution and Production Support System of Agriculture, and Fisheries 2) Program for Improving the function of Agricultural Infrastructure and Sustainable Operation and Maintenance, 3) Program for the Sustainable Utilization of Fishery Resources, 4) Program for Promoting Community-based Economic Activities in Agriculture and Fisheries, and 5) Program for Improving and Strengthening Markets for Agriculture and Fishery Products) set by the Assistant Strategy Formulation Study with particular reference to the following six points.

1) As the Action Plan is to be implemented for the three years from 2003 to 2005, the priority is put on projects that are in urgent need of implementation.
2) Taking into account the policy that the GOI restrains new foreign loans because of financial reconstruction, it is necessary to carefully examine economic and financial sustainability of new investment in large-scale infrastructure development.
3) From the viewpoint of the effective use of ODA, issues that have the possibility of competing with the private sector (e.g., estate crop production and export promotion) will be excluded from the Action Plan.
4) Cooperation in the institutional aspect is of great importance, so that the support for production techniques and infrastructures that Japan has provided so far will be effectively utilized.
5) It is indispensable to prioritize cooperation components from various options and attain the effective combination of the financial and technical cooperations in order to maximize the potential effects of the assistance with Japan's limited resources for ODA.

6) To avoid the overlap of cooperation with other donors, it is necessary to find appropriate contents and target areas for the assistance.

Components of the Program for Improving the Institution and Production Support System of Agriculture and Fisheries

4.4 In order to realize Stable Food Supply and Improvement of Nutrition, the issues to be tackled encompass not only the improvement of production technique but also the integrated function of various policies and institutions, including macroeconomic policy for finance and financial systems, human resource development, credit schemes, agricultural extension, and capacity building for farmers' organizations. In globalization in the international economy and decentralization in Indonesia, it is of critical importance to establish consistent policy and institutions in order to link macro policies conducted by the central government (e.g., policies for land systems and stable domestic production, and tariffs and subsidies to enable balance with imports) with the agricultural development plans formulated and conducted by local governments at farm level.

4.5 At present, it is generally recognized that some progress has been made in the production technique for food crops in Indonesia (Agricultural Development Plan, Ministry of Agriculture). The next step is to utilize the effects of this support with the improvement of agricultural policy and institutions.

4.6 In light of ODA, the sectors that have relatively greater needs for production support are those of horticulture and livestock rather than those of estate crops, in which the private sector is engaged. Taking into account 1) the fact that the protein is the second most important nutrient (following calories) for the improvement of human nutrition and 2) the necessity for raising the income of small-scale farmers in order to alleviate poverty, development of the livestock sector is an urgent requirement. Considering this reason and the above information, the following two components have been set with respect to the cooperation program.

1) Support for policy and institutional system in line with the decentralization policy
2) Development of livestock industry utilizing local resources

4.7 <u>Support for Policy and Institutional System in Line with the Decentralization Policy</u>

This component aims at supports for policy and institutions to integrate the effects of macro policies conducted by the central government with those of agricultural development plans formulated and conducted by local governments at farm level. Especially, in order to make the best use of previous cooperation provided by Japan, the focus is on strengthening farmers' origination and education and training.

4.8 <u>Development of Livestock Industry Utilizing Local Resources</u>

In Indonesia, the rise in people's incomes, the diversification of diet and the growth of the population have led to an increase in demand not only for vegetable protein but also for animal protein. The development of the livestock sector in Indonesia is based on two purposes: a) diversification of farm activities and improvement of the income level of farmers and b) the stable and safe supply of livestock products to the nation. The livestock sector in Indonesia is divided into two types, the local-resources-based industry, and the imported-input-based livestock industry. The former is to be developed by the private sectors, and thus be out of target by the ODA. Rather the development of the latter type of livestock industry, which encompasses the small-scale farmers, is of great importance to vitalize the rural economy, including agribusiness

Components of the Program for Improving the Function of the Agricultural Infrastructure and Sustainable Operation and Maintenance

4.9 The irrigation area has been expanded under the initiative of the government in order to attain foodstuff self-sufficiency. However, trade liberalization has given rise to serious price competition between local and imported rice. Further, other economic sectors are showing signs of economic recovery from the currency crisis, and this recovery has been improving the people's purchasing power. Under such circumstances, the public focus on food policy is shifting to stable food supply rather than food self-sufficiency. In this regard, it is necessary to carefully and seriously examine the irrigation development, taking into account the food policy based on the future supply and demand of food.

4.10 Regarding the existing irrigation schemes, there are various subjects to be focused upon. They are: the deterioration of irrigation facilities, the malfunction of irrigation facilities due to poor O&M caused by the low progress of hand-over to the WUA for the reduction of budgetary burden, the transfer of irrigated land to other land use on the populous Java Island, and the abandoned irrigated area on the outer islands.

4.11 Taking the above situation into consideration, the priority for Japan's ODA is given to institutional development for O&M of irrigation facilities, which had been expanded under assistance by donors including Japan. In this regard, the following three components have been selected for the irrigation sector:

1) Support for participation of WUA in irrigation O&M and rehabilitation.
2) Strengthening of WUAs and local governments for the above-mentioned purpose.
3) Rehabilitation of existing facilities and development of small-scale irrigation facilities for the above-mentioned purpose.

4.12 For new development and rehabilitation in the medium or larger scale irrigation schemes, their O&M will be taken into consideration as an essential component.

4.13 <u>Support for Participation of WUA in Irrigation O&M and Rehabilitation</u>

O&M and rehabilitation are fully dependent on the government budget, and this has become a financial burden on the government. Under such circumstances, the government issued the Irrigation O&M Policy in 1987 to hand over the O&M of irrigation facilities to WUAs and local government, in order to bring about sustainable O&M and efficient water supply through charging irrigation service fees to water users. Meanwhile, taking the present situation of farmers, framework of O&M has been changed based on the revision of water law in March 2004, and O&M and rehabilitation responsibility for main irrigation facilities remains in the hand of government along with facilitating the farmers' participation through WUA empowerment.

Since the late 1980s, donors have supported the implementation of the above policies for the institutional development for O&M, the formation of WUAs, the collection of irrigation service fees, and the handing over of O&M at project basis. In spite of such efforts, the results have been far worse than expected. In order to improve the situation, the government had since 1999 started to strengthen the "institutional framework for O&M" with the aim of "improving irrigation management policy, institution, and regulation", under the support of the WATSAL by the World Bank. The local government mechanism, which is in the process of decentralization, had been undergoing reorganization for the rehabilitation and O&M of irrigation facilities. In this regard, along with progress in strengthening the above institutional framework, it is necessary to support the participation of WUAs in irrigation O&M and rehabilitation.

4.14 <u>Strengthening of WUAs and Local Governments for the above-mentioned Purpose</u>

High economic growth and population increase have brought about an expansion in water demand in urban and industrial sectors. This has prompted the government to shift the focus on water resources from being a natural resource regarded as a social asset to being an economic resource. Since irrigation uses the largest volume of water, the efficient use of water and transparent operation of facilities are required more than ever in the irrigation sector. And the capacity building of local government is required for strengthening of WUAs.

Due to the diversity of ways to manage irrigation water and the previous protections of the government, farmers have deeply acquired the rather stereotypical mindset that "the government will always secure irrigation water without participation in O&M". This mindset does not enable efficient use of water and appropriate O&M of irrigation facilities through the establishment of autonomous WUAs. In order to improve such a situation, it is necessary to organize WUA, suitable for local conditions, and capable of managing the organization in a democratic and sustainable manner as well as managing the finances with transparency and soundness, through changing the mindset of farmers.

4.15 <u>Rehabilitation of Existing Facilities and Development of Small-scale Irrigation Facilities for the Above-mentioned Purpose</u>

After the construction of irrigation schemes, facilities and structures gradually deteriorate, and the lack of proper O&M of irrigation facilities accelerates deterioration of their functions.

There is a vicious cycle of inadequate O&M and low collection of irrigation service fees in irrigation management. In such a situation, WUAs are unable to conduct O&M in a sustainable and efficient manner. Therefore, countermeasures are required to remove this vicious cycle before the handing over of irrigation management and O&M to WUAs. Countermeasures include revision of irrigation area to an appropriate size, small-scale water resource development, selection of structure design manageable for farmers and the rehabilitation of deteriorated facilities, in order to enable WUAs to participate in O&M of the irrigation schemes in efficient and effective manner.

Components of the Program for the Sustainable Utilization of Fishery Resources

4.16 The development subjects, identified in Chapter 3, are broadly categorized into two major aspects, namely, resources management for sustainable fisheries promotion, and the supply of fishery products to the people at affordable low prices. These two aspects yield the following two components.

1) Cooperation in establishing the resource management scheme for the sustainable development of the fisheries and fisheries communities
2) Promotion of coastal and inland captures fishery and fish culture for expansion of local consumption of fisheries products at low prices

4.17 <u>Cooperation in Establishing the Resource Management Scheme for the Sustainable Development of the Fisheries and Fisheries Communities</u>

In order to utilize the fishery resources in a sustainable way, it is required to formulate the total resource management scheme among the central and local governments and fisheries communities. It is required to prepare policies, regulations and support schemes for the formulation of the cooperative resource management scheme including such key stakeholders as central/local governments and fisheries communities under the decentralization.

4.18 <u>Promotion of Coastal and Inland Capture Fisheries and Fish Culture for Expansion of Local Consumption of Fishery Products at Low Prices</u>

The promotion of capture fishery and aquaculture in areas with the high potential for development is necessary to increase local fish consumption and the intake of protein by supplying cheap fishery products. In addition, it is important to decrease production losses in natural resources and to utilize them efficiently from the viewpoint of the promotion of the protein intake necessary for nutritional improvement and the sustainable utilization of fishery resources. Moreover, from an aspect of poverty alleviation, the promotion of capture fishery and aquaculture shall contribute directly to increasing the income of fishermen.

Components of the Program for Promoting Community-based Economic Activities in Agriculture and Fisheries.

4.19 This program aims to raise the income of farmers and fishermen through the vitalization of their villages, in order to alleviate poverty. Although there are various activities relating to agriculture and fisheries, the program will focus on the development of processing to add value to products, as well as on the creation of job opportunities, as the other aspects such as farm management and fishing have already been promoted by GOI.

4.20 With the sector analysis it was found that the issues to be tackled are 1) the construction of information network systems with regard to the partners, markets, techniques, funds, and materials for processing, 2) tax concessions, 3) the preparation of credit schemes for small and medium-sized enterprises, 4) the improvement and preparation of micro credits for small-scale farmers and fishermen, and 5) the development of human resources.

4.21 Based on these findings, the program sets up the cooperation components, namely 1) the encouragement of local processing industries for agricultural and fishery products, which includes the recommendations for i) the institutional framework for creation of incentive for investments, ii) improvement and construction of information systems, iii) encouragement and strengthening of farmers' and fishermen's organizations to promote the local processing industries for agricultural and fishery product and iv) Improvement of necessary infrastructures such as small-scale facilities for the above mentioned purpose and 2) support for income generation by poor people: promotion of micro credit schemes and recommendation and support for promoting and strengthening mutual-help organizations for farmers and fishermen.

4.22 <u>Encouragement of Local Processing Industries for Agricultural and Fishery products</u>

i) Recommendation for Institutional Framework for Creation of Incentive for Investments

In order to develop new local industries, a prerequisite is to prepare credit for small and medium-sized enterprises, which require some initial investment funds. Therefore, in vitalizing rural economy, support for the establishment of institutional concession as an investment incentive should be carefully examined, in order to develop agribusiness centering on local industries.

ii) Recommendation for Information System

In order to promote investment as described above, it is also necessary to prepare the information system, including the construction of the information network with regard to the partners, markets, techniques, funds, and materials for processing.

iii) Encouragement and Strengthening of Farmers' and Fishermen's Organizations to Promote the Local Processing Industries for Agricultural and Fishery Products

In order to develop agribusiness, the MOA and MMAF have conducted micro-projects such as micro credit and community-based projects for groups voluntarily organized by farmers and fishermen (e.g., Klonpokku). Fundamental education to foster a awareness of participation, to cultivate a sense of identity and responsibility, and so on is required, therefore it may take a long time until they are functioning well as business units. To promote this, technical support on encouragement and strengthening of farmers' and fishermen's organizations is indispensable.

iv) Improvement of Necessary Infrastructures such as small-scale facilities for the above-mentioned purpose

Improvement of necessary infrastructures such as small-scale facilities for the above-mentioned purpose will be examined.

4.23 <u>Support for income generation by poor people: promotion of micro credit schemes and recommendation and support for promoting and strengthening mutual-help organizations for farmers and fishermen</u>

The businesses of most farmers and fishermen are small in scale, and generally lack the channels and financial resources that are necessary to manage all activities from production through to marketing. Therefore, there are cases in which farmers tend to depend on support from private business people such as middlemen and rice millers, in order to procure farm inputs to be required. As a result, it is highly likely that the farmers will end up selling their products at the low prices requested by the private business people. For fishermen, too, it is difficult to individually procure production tools, such as fishing boats, nets, engines, as well as the materials to preserve the freshness of fish, such as ice and container boxes. They are often required to sell their catches at unfair prices.

In order to change this situation, the GOI have been implementing various micro credit programs at low interest rates. In general, however, those micro credit schemes tend to limit the credit purposes, periods and amounts, and often work as constraints against those that use them. Moreover, the group-guarantee system adopted in these programs is faced with financial management problems on the borrowers' side, such as cooperatives etc., with a lack of understanding on credit system among their staff as well as the members that leads to unclear handling of the credit repayment process and money usage.

Addressing this problem requires assistance for small farmers and fishermen so that they may have sufficient capability to properly utilize these micro credit programs. On that account, it is considered important to allocate a sufficient time period for third party supporters, such as NGOs, to enable facilitation of farmers and fishermen actively taking the initiative in managing their groups, together with the provision of practical training courses areas such as organizational and financial management, etc.

Components of the Program for Improving and Strengthening Markets for Agricultural and Fishery Products

4.24 As a result of the sector analysis, the improvement in the marketing of agricultural and fishery products have been summarized into the following five points.

(i) To realize hygienic and efficient market management
(ii) To establish an effective legal framework governing the market for realization of transparent trade and fair price formation
(iii) To facilitate access of farmers/fishermen to market information
(iv) To realize collective marketing by farmers' organizations
(v) To clarify and improve the situation of post-harvest losses

4.25 Out of five points above, item (iv) is to be studied together with farmers' organization in the Program for Improvement of Institutions and Production in Agriculture. Study of the item (v) is to be considered on a medium-/ long-term basis, since the target ranges vary widely from farms through to the market and distribution. Items (i),(ii) and (iii) are to be taken up for study in this program, focusing on the market. Accordingly, the components under this program are to be as follows:

1) Recommendation on the improvement of market institutions for agricultural and fisheries products
2) Recommendation on the establishment of basic market information systems for agricultural and fisheries products

4.26 <u>Recommendation on the Improvement of Market Institutions for Agricultural and Fisheries Products</u>

Existing wholesale markets of agricultural and fishery products are generally superannuated, congested and not kept hygienic. In addition to this, there is the daily occurrence of dead stock, and increasing post-harvest losses. No license system for wholesalers, no obligation to report dealing data, face-to-face negotiations and incomplete quality standards are constraints on transparent trade and fair price formation. The wholesale markets are centered on distribution between producers and consumers, aiming at the smooth and stable supply of commodities (mostly perishables) through fair and prompt transactions. Improvement of the wholesale market, therefore, is imperative. The effective legal framework governing the market needs to be thoroughly reviewed and improved. The produce collection system, based on collective marketing by farmers' organizations or the equivalent, is an important prerequisite for efficient operation of the markets.

4.27 <u>Recommendation on the Establishment of Basic Market Information Systems for Agricultural and Fisheries Products</u>

The market, positioned in between producers (farmers/fishermen) and consumers (product users), should play the important role of information exchange between the two. However, this is not sufficiently in place as of yet. Farmers have difficulties accessing market information. Price data by commodity are regularly collected by central and regional government officials, and released publicly through the media. However, this information is not fully utilized due to the drawbacks in the quantity, quality, promptness and practicality of the information. Improvement needs to be carried out to establish effective and wide-ranged market information systems for revitalization of the market. Access to information required for promotion of agribusiness should also be facilitated.

THE SUPPORT PROGRAM
FOR
AGRICULTURE AND FISHERIES DEVELOPMENT
IN
THE REPUBLIC OF INDONESIA

Final Report
Sector Analysis

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CURRENCY

U.S. $ 1.00 = Rp.9,495
(as of the end of May 2005)
(U.S. $ = United States Dollars, Rp. = Indonesia Rupiahs)

LIST OF ABBREVIATIONS

AARD	Agency for Agricultural Research Development
ACIAR	Australian Center for International Agricultural Research
ADB	Asian Development Bank
AFTA	ASEAN Free Trade Area
AIAT	Assessment Institute for Agricultural Technology
AMDAL	Analysis for the Impact of Environment (*Analisa Mengenai Dampak Lingkungan)*
APBN	National Government Budget (*Anggaran Belanja Pendapatan Nasional*)
APBD	Local Government Budget (*Annggaran Belanja Pendapatan Daerah*)
APEC	Asia-Pacific Economic Cooperation
APP	Agricultural Extension Academy
ASEAN	Association of Southeast Asian Nations
AUSAID	Australian Agency for International Development
BAPPEDA	Provincial Development Planning Agency (*Badan Perencanaan Pembangunan Daerah*)
BAPPENAS	National Development Planning Agency (*Badan Perencanaan Pembangunan Nasional*)
BDA or BBDA	Agribusiness Training Centers (Balai Besar Diklat Agribisinis)
BIMAS	Mass Guidance Program (*Bimbingan Massal*)
BIPP	Agricultural Extension Information Centre (*Balai Informasi dan Penyulunan Pertanian*)
BPP	Extension Office (*Balai Penyuluhan Pertanian*)
BPS	Central Bureau of Statistics (*Badan Pusat Statistik*)
BRI	State Owned Peoplie's Bank (*Bank Rakyat Indonesia*)
BULOG	National Logistics Agency (*Badan Urusan Logistik*)
BUMN	State Owned Cooperation *(Badan Usaha Milik Negara)*
CEPT	Common Effective Preferential Tariff
CRIFI	Central Research Institute of Fisheries
CSIRO	Cooperative Scientific and Industrial Research Organization for Australia
DAC	Development Assistance Committee
DAU	General Allocation Fund (Dana Alokasi Umum)
DAK	Specific Allocation Fund (Dana Alokasi Khusus)
DG	Directorate General

DGCF	Directorate of Capture Fishery
DGMFRC	Directorate General of Marine and Fishery Resources Controlling
DINAS	Service Office for Agriculture and Industry & Trade, Kabupaten/ Kotamadya/ Kota level
DIP	Approved List of Development Project for Development Budget *(Daftar Isian Proyek)*
DISPENDA	Regional Revenue Service *(Dinas Pendapatan Daerah)*
DOLOG	Regional Logistic Agency (*Depot Logistik*)
DPIK	District Irrigation Management Fund *(Dana Pengelolaan Irigasi Kabupaten)*
DPIP	Provincial Irrigation Management Fund *(Dana Pengelolaan Irigasi Province)*
EEZ	Exclusive Economic Zone
EOM	Efficient Operation and Maintenance under IOMP
FAD	Fish Aggregation Device
FAO	Food and Agriculture Organization of United Nations
FY	Fiscal Year
GBHN	Guidelines of the State Policy (*Garis Besar Haluan Negara*)
GDP	Gross Domestic Products
GKSI	National Dairy Federation
GOI	Government of Indonesia
GOJ	Government of Japan
GT	Gross Tonnage for Vessels
GTZ	German Technical Cooperation
HACCP	Hazard Analysis and Critical Control Point Evaluation
HP	Horse Power
IBRA	Indonesian Bank Restructuring Agency
ICZPM	Integrated Coastal Zone Planning Management
IEEZ	Indonesian Exclusive Economic Zone
IFAD	International Fund for Agricultural Development
IMF	International Monetary Fund
IMO	International Maritime Organization
IMPR	Irrigation Management Policy Reformation
IOMP	Irrigation Operation and Maintenance Policy
IPAIR	Irrigation Service Fee *(Iuran Pelayanan Irigasi)*
IPM	Integrated Past Management

IPU	Fishing Business License *(Izin Usaha Perikanan)*
ISF	Irrigation Service Fee *(Iuran Pengelolaan Irigasi)*
IUP	License of Fishing *(Izin Usaha Perikanan)*
JICA	Japan International Cooperation Agency
JBIC	Japan Bank for International Cooperation
KEPPEN	Ministerial Decree *(Keputusan Menteri)*
KEPRES	Presidential Decree *(Keputusan Presiden)*
KIMBUN	Industrial Tree Crops Community Region (*Kawasan Industri Masyarakat Perkebunan*)
KIMPRASWIL	Ministry of Settlement and Regional Infrastructure (Ministry of Public Works at this moment)
KKP	Food Security Credit (*Kredit Ketahanan Pangan*)
Koptan	Farmer's Own Cooperative (*Kooperasi Tani*)
KUB	Kelompok Usaha Bersana
KUD	Village Cooperative Unit (*Koperasi Unit Desa*)
KUD MINA	Fishery Cooperation
KUT	Farm Credit (*Kredit Usaha Tani*)
LBP	Log Book of Fish Capture and Transportation
LLO	Operational Qualification License
LPT-Indak	Lembaga Pembinaam Terpadu Industri dan Dagang Kecil
MMAF	Ministry of Marine Affairs and Fisheries
MOA	Ministry of Agriculture
MOHA	Ministry of Home Affairs
MOIT	Ministry of Industry and Trade
MOI	Ministry of Industry
MOT	Ministry of Trade
MSY	Marine Fishery Resources Potential
MUSBANGDES	Desa/Village Development Consultation Meeting *(Musyawarah Pembangunan Desa)*
NBB	Need Based Budget under IOMP
NGO	Non Governmental Organization
NPFS	National Program for Food Security
NTB	West Nusa Tenggara *(Nusa Tenggara Barrat)*
NTT	East Nusa Tenggara *(Nusa Tenggara Timur)*
ODA	Official Development Assistance
OECD	Organization for Economic Cooperation and Development

O&M	Operation and Maintenance
P3A	Water Users Association
PAD	Regional Original Revenue *(Pendapatan Asli Daerah)*
PBIS	Project Brief Information Sheet
PEMP	Economic Empowerment of Coastal Community
PERDA	Regional Regulation *(Peraturan Daerah)*
PIK	Small Scale Irrigation Management Transfer (Penyerahan Irigasi Kecil)
PII	Public Institutions and Infrastructures
PKPI	Irrigation Management Policy Reform: IMPR *(Pembaharuan Kebijakan Pengelolaan Irigasi)*
PJT	Water Service Public Corporation: River Basin Management Corporation *(Perum Jasa Tirta)*
PMMT	Integrated Quality Management
POLAIR	Patrol Vessels of the Navy and Marine Police
PP	Government Regulation *(Peraturan Pemerintah)*
PPNS	Civil Office Investigator
PPPPK or P4K	Ministry of Agriculture's Micro-Credit Project for Farmers and Fisherfolk (*Proyek Peningkatan Pendapatan Petani-Nelayan Kecil*)
PPTPA	Water Resources Management Executive Committee in the River Basin *(Panitia Pelaksana Tata Pengaturan Air)*
PROPEDA	Regional Development Plan (*Program Pembangunan Daerah*)
PROPENAS	National Development Plan (*Program Pembangunan Nasional*)
PSDA	Water Resources Management *(Pengelolaan Sumber Daya Air)*
PTGA	Water management at tertiary level *(Proyek Tata Guna Air)*
PTPA	Provincial Water Resources Coordination Committee *(Panitia Tata Pengaturan Air Propinsi)*
PU	Ministry of Public Works *(Pekerjaan Umum)*
RENSTRA	Strategic Plan *(Rencana Strategis*)
REPETADA	Regional Annual Development Plan *(Rencana Pembagunan Tahunan Daerah)*
SEKNEG	State Secretariat (*Sekretariat Negara*)
SIKPII	Permission Letter of Fishing Ship *(Surat Izim Kapal Pengangkut Indonesia)*
SIKPPII	Permission Letter of Fishing and Transport Ship *(Surat Izim Kapal Pengangku dan Penangkap Ikan Indonesia)*
SME	Small & Medium Enterprise
SPI	Fishing Letter/Document *(Surat Penangkapan Ikan)*

SSN	Social Safety Net
SUB-DOLOG	DOLOG for a Distrcit (refer to DOLOG)
S/W	Scope of Work
TAC	Total Allowable Catch
UDKP	Regional Working Unit for Development *(Unit Daerah Kerja Pembangunan)*
UNCLOS	United Nations Convention for Law of Sea
UNDP	United Nations Development Programme
UPT or UPTD	Regional Technical Implementation Unit *(Unit Pelaksana Teknis Daerah)*
USAID	United States Agency for International Development
UU	Law *(Undang Undang)*
WATSAL	Water Sector Adjustment Loan
WTO	World Trade Organization
WUA	Water Users Association *(P3A)*

CHAPTER 1 INTRODUCTION

1.1 Authority

This report has been prepared in accordance with the Scope of Work (S/W) for the Support Program for Agriculture and Fisheries Development (the Support Program) agreed upon between the National Development Planning Agency (BAPPENAS) of Indonesia and the Japan International Cooperation Agency (JICA) on the 8th of February in 2002.

1.2 Background of the Support Program

Japan has rendered a variety of technical assistance and financial cooperation for loan and grant-aid to Indonesia, as that country's top donor in the agriculture and fisheries sector. In order to cooperate more efficiently and effectively, it has been necessary to understand the changes in the economic and politic affairs in Indonesia. For this purpose, JICA conducted a Sector Assistance Strategy Formulation Study on the Agriculture and Fishery Sector (Assistance Strategy Formulation Study) in June of 2001. As a result of this study, the following two development issues and five cooperation programs were identified as the direction of Japan's cooperation in the agriculture and fisheries sector in Indonesia.

Development Issue	Cooperation Program
Stable Food Supply and Improvement of Nutrition	- Program for Improving the Institution and Production Support System of Agriculture and Fishery - Program for Improving the Function of the Agricultural Infrastructure and Sustainable Operation and Maintenance - Program for the Sustainable Utilization of Fishery Resources
Raising the Income of Farmers and Fishermen and the Vitalization of the Rural Economy	- Program for Promoting Community-based Economic Activities in Agriculture and Fisheries - Program for Improving and Strengthening Markets for Agriculture and Fishery Products

Given the results of the above study, the Government of Indonesia (GOI) requested to the Government of Japan (GOJ) in October 2001 to formulate an Action Plan and monitor its implementation. In response to this request, the GOJ decided to conduct the Support Program, and the S/W for the Support Program was agreed upon by the GOJ and the GOI on the 8th of February in 2002 (refer to Attachment 1).

1.3 Objective and Outline of the Support Program

1.3.1 Objectives of the Support Program

The objectives of the Support Program are to:

(1) formulate the Action Plan for the above-mentioned cooperation programs through a sector analysis of the agriculture and fisheries sector and a review of the tentative direction of Japan's cooperation formulated by the Assistance Strategy Formulation Study; and

(2) monitor the implementation of the Action Plan.

1.3.2 Target of the Support Program

(1) Target Area

Whole areas of the Republic of Indonesia

(2) Agencies Concerned

BAPPENAS is the coordinating agency. The other Indonesian agencies concerned are 1) the State Secretariat of the Bureau of Technical Cooperation (SEKNEG), 2) the Ministry of Finance, 3) the Ministry of Agriculture (MOA), 4) the Ministry of Marine Affairs and Fisheries (MMAF), 5) the Ministry of Settlement and Regional Infrastructure (KIMPRASWIL), the new name at this moment is the Ministry of Public Works (PU), 6) the State Ministry of Cooperatives and Small and Medium Enterprises, 7) the Ministry of Industry and Trade (MOIT), the Ministry of Trade (MOT) at this moment[1], 8) the Ministry of Home Affairs (MOHA), and 9) the State Ministry of Women Empowerment.

(3) Target Scheme

All the schemes of the loan, grant-aid, and technical assistance projects under Japanese ODA from 2003 to 2005.

1.3.3 Scope of the Support Program

The Support Program conducts the sector analysis for the agriculture and fisheries sector, and formulate the Action Plan. It then revises the Action Plan, taking into account the information obtained by monitoring activities and changes in the socio-economic conditions of Indonesia.

The sector analysis identifies the development issues of the sector based on the studies of socioeconomic conditions of the country, and clarifies the direction of Japan' cooperation. The Action Plan identifies draft of individual projects, based on the current direction of Japan's cooperation to the agriculture and fisheries

[1] MOIT has been divided into MOI and MOT. Agency concerned with the Support Program is MOT.

sector in Indonesia from 2003 to 2005.

The Support Program is being carried out in two phases.

The Phase 1, carried out during the period from May 2002 until the middle of December 2002, aims to carry out the sector analysis, and formulate the Action Plan and the Monitoring System through the agreement between Japanese and Indonesian sides.

The Phase 2, which will be carried out from 2003 to 2005, will i) revise the sector analysis for each year to obtain and understand updated information on the agriculture and fisheries sector; ii) collate and analyze the information from monitoring activities for the projects of the Action Plan; and iii) revise the Action Plan in a timely and appropriate manner with these two kinds of information.

1.4 Work Stages of Phase 1

Phase 1 was divided into six stages, i.e., i) the preparatory work in Japan, ii) the first work in Indonesia, iii) the first home work in Japan, iv) the second work in Indonesia, v) the second home work in Japan, and vi) the third work in Japan. During the period from May to November 2002, the first five stages have been completed. In late December 2002, the third work in Indonesia had been conducted to explain and discuss Sector Analysis Report and the Action Plan Report to the Indonesian side.

1.4.1 Preparatory Work in Japan

This work was carried out at the beginning of May 2002. The main contents of the work were i) the collection and analysis of data and information, ii) planning the details of the Support Program, iii) preparation of the draft of the Inception Report, iv) explanation and discussion at the advisory meeting on the Inception Report, v) finalization of the Inception Report based on comments and advice received at the meeting.

1.4.2 First Work in Indonesia

The first work in Indonesia was conducted over 45 days from May 12 to June 25, 2002. The work mainly consisted of i) an explanation and discussion of the Inception Report to the Indonesian governmental organizations (refer to Attachment 2), ii) the sector analysis for the agriculture and fisheries sector, iii) a hearing from the Indonesian governmental organizations, iv) collecting the Project Brief Information Sheets (PBIS) from them.

1.4.3 First Home Work in Japan

After the first work in Indonesia, the first home work was carried out in Japan from late June to early July. Major tasks of the work were i) the explanation and discussion on the result of the first work in Indonesia to the Japanese governmental organizations in an advisory meeting, and ii) preparation of the Interim Report based on comments and advice received at the meeting.

1.4.4 Second Work in Indonesia

This work was conducted over the period from the 14th of July to the 10th of September 2002. The work mainly consisted of i) the explanation and discussion of the Interim Report to the Indonesian organizations concerned (refer to Attachment 3), ii) holding the seminar for them and other development partners to facilitate their understanding of Japan's assistance strategy for the agriculture and fishery sector, iii) the discussion of the Action Plan with the relevant organizations, iv) the formulation of the Action Plan and the draft of the Monitoring System, v) the preparations of the Draft Sector Analysis Report and Draft Action Plan, and vi) an explanation and discussion of theses reports to the Indonesian governmental organizations (refer to Attachment 4).

1.4.5 Second Home Work in Japan

This work was carried out over the period from the end of September to the beginning of November 2002. The work included i) the explanation and discussion on the result of the second work in Indonesia to the Japanese governmental organizations in an advisory meeting and ii) the preparation of the Sector Analysis Report and the Action Plan Report based on comments and advice received at the meeting.

1.4.6 Third Work in Indonesia

This work was conducted over the period from the 12th to the 19th of December 2002. The work mainly consisted of i) the explanation and discussion of the Sector Analysis Report and Action Plan to the Indonesian organizations concerned (refer to Attachment 3), ii) holding the seminar for them and other development partners to facilitate their understanding of Japan's assistance strategy for the agriculture and fishery sector.

1.5 Work Stages of Phase 2

Phase 2 consisted of four stages of work in Indonesia, i.e., the fourth and fifth work in Japanese fiscal year 2004, and the sixth in Japanese fiscal year 2004, and seventh work in 2005. Up to now, all works have been completed.

1.5.1 Fourth Work in Indonesia

This work was conducted over the period from May 20th to October 18th 2003.

The work included i) the explanation and discussion on the fourth work in Indonesia to the Indonesian organizations concerned, ii) the monitoring of the Action Plan and preparation of the Monitoring Report No. 1, iii) the preparation of the first draft of the revised Sector Analysis Report, iv) the preparation of the first draft of the revised Action Plan based on the JICA Need Survey, v) the explanation to and discussion with the Indonesian organizations concerned on the Progress Report No.2 to be prepared by compiling the first drafts of the above revised Sector Analysis Report and Action Plan.

1.5.2 Fifth Work in Indonesia

After the preparation of the Sector Report No.2 (Draft) incorporating the results of examination and comments by the Japanese organization on the Progress Report No.2, this work was conducted over the period from February 29th to March 7th 2004. Main work was the explanation to and discussion with the Indonesian organization concerned on the Sector Report No.2 (Draft).

1.5.3 Sixth Work in Indonesia

This work was conducted over the period from May 31st to October 27th 2004. The work included i) the explanation and discussion on the fourth work in Indonesia to the Indonesian organizations concerned, ii) the monitoring of the Action Plan and preparation of the Monitoring Reports No. 2 and No.3, iii) the preparation of the first draft of the revised Sector Analysis Report, iv) the preparation of the first draft of the revised Action Plan based on the JICA Need Survey, v) the explanation to and discussion with the Indonesian organizations concerned on the Progress Report No.3 to be prepared by compiling the first drafts of the above revised Sector Analysis Report and Action Plan.

1.5.4 Seventh Work in Indonesia

This work was conducted over the period from April 5th to April 27th 2005. The main work will include i) preparing Draft Final Report incorporating the results of the examination and comments by the Japanese organization on the Progress Report No.3, and explaining and discuss Draft Final Report to and with Indonesian organization concerned, ii) holding seminar in order to enhance the understanding of Support Program by Indonesian government officials concerned and relevant donor. Final Report was prepared in June 2005, incorporating the opinions and comments in the explanation and the discussion held in this work period.

CHAPTER 2 SOCIOECONOMIC CONDITIONS IN INDONESIA

2.1 Present Economic Conditions

21-1 In 1998, the Indonesian economy was heavily damaged by the Asian economic crisis, which originated from the devaluation of the Thai Baht in July 1997. By 1999, the real gross domestic product (GDP) had dropped to -13.1% (refer to the table below). The largest decline occurred in the construction sector (-36.4%), followed by declines in the financial services sector (-26.6%) and trade and tourism sector (-18.2%). On the other hand, economic decline was small in the agriculture, forestry and fisheries sector (agriculture; -0.7%, forestry; -8.5%, fisheries; 1.9%, and total of this sector; -1.3%) and mining sector (-2.8%). Thus, the impact of the Asian crisis on the agriculture, forestry and fisheries sector was relatively minor as compared to those on other sectors, though the growth rates of the real GDP of the sector have been low through the years. One of the main reasons that the economic crisis had a small effect on the sector is that the agricultural production of Indonesia largely depends on food crop production, which is less sensitive to economic changes.

Growth Rate of GDP of Indonesia（1993 Constant Price）

(Unit: %)

	1995	1996	1997	1998	1999	2000	2001	2002*2	2003*2
Real GDP Growth Rate	8.2	7.8	4.7	-13.1	0.8	4.9	3.5	3.7	4.1
GDP Growth rate by Sector									
Agricul./forestry/fisheries	4.4	3.1	1.0	-1.3	2.2	1.9	1.7	2.0	2.5
(Agriculture)	(4.9)	(3.0)	(-0.9)	(-0.7)	(2.5)	(1.5)	(1.1)	(1.8)	(2.6)
(Forestry)	(0.0)	(2.2)	(11.6)	(-8.5)	(-4.6)	(1.6)	(2.6)	(1.9)	(-0.4)
(Fisheries)	(4.8)	(5.4)	(5.8)	(1.9)	(6.1)	(5.0)	(4.7)	(3.9)	(4.0)
Mining	6.7	6.3	2.1	-2.8	-1.6	5.5	1.3	2.6	0.5
Manufacturing	10.9	11.6	5.3	-11.4	3.9	6.0	3.1	3.4	3.5
Public work*1	15.9	13.6	12.4	3.0	8.3	7.6	8.2	6.0	6.8
Construction	12.9	12.8	7.4	-36.4	-1.9	5.6	4.4	4.9	6.7
Trade and tourism	7.9	8.2	5.8	-18.2	-0.1	5.7	3.7	3.8	3.7
Transport.& com.	8.5	8.7	7.0	-15.1	-0.8	8.6	7.8	8.0	10.7
Finance	11.0	6.0	5.9	-26.6	-7.2	4.6	5.4	5.7	6.3
Service	3.3	3.4	3.6	-3.9	1.9	2.3	3.1	2.1	3.4

*1: Electricity, gas, and water supply. *2: Preliminary figures in 2002 and 2003.
Source: Statistical Yearbook, BPS.

21-2 In 1999, some of the sectors recovered slightly, and in 2000 all sectors came to achieve positive growth rates in the real term. The growth rate of the GDP in 2003 was temporally announced at 4.1%, indicating continuous recovery of the Indonesian economy. Some

Rates of Increase in Consumer Price Indonesia

1997	11.05%
1998	77.63%
1999	2.01%
2000	9.35%
2001	12.55%
2002	10.03%
2003	5.06%

Source: Statistical Yearbook, CBS

economic indicators show negative trends in 2001, as is evident in the re-appearance of inflation and the decreasing tendency of foreign and internal investments, however, those indicators in 2003 tend to start to recover (refer to the tables to the right and below).

Trend of Investments

	Foreign Investment (million US$)			Domestic Investment (Billion Rupiah)		
	Project	Amount	Difference	Project	Amount	Difference
1997	790	33,800	3,900	718	119,900	19,200
1998	1,035	13,600	-20,200	324	60,700	-59,200
1999	1,164	10,900	-2,700	237	53,600	-7,100
2000	1,524	15,400	4,500	355	92,400	38,800
2001	1,333	15,100	-300	264	58,800	-33,600
2002	1,141	9,800	-5,300	184	25,300	-33,500
2003	1,024	13,200	3,400	181	48,500	23,200

Source: Statistical Yearbook of Indonesia, BPS

21-3 The nominal GDP of the Indonesian economy was Rp.1.79 quadrillion in 2003 (refer to Table 2.1.1). Out of this, the manufacturing sector occupies the largest share with 24.7%, followed by the agriculture, forestry and fisheries sector (agriculture; 13%, forestry; 1.1%, fisheries; 2.5%, and total of this sector; 16.6%) and the trade and tourism sector (16.3%). The GDP per capita[1] in 2002 was equivalent to US$819, which is higher than those in 1998 (US$473) and in 1999 (US$687), however is around 80% of the GDP per capita in 1995 (US$1,038).

21-4 The shares of each sub-sector in the agriculture, forestry and fisheries sector nominal GDP in 2003 are shown in the following table. Farm food crops occupy the biggest share with 49.4%, followed by non-food crops (15.9%), fisheries (15.1%), and livestock (13.2%).

Share of Each Sub-sector in the Agriculture, Forestry and Fisheries Sector Nominal GDP

(Unit: %)

	1996	1997	1998	1999	2000	2001	2002*1	2003*1
Farm Food Crops	53.6	51.7	52.9	53.9	51.7	51.5	51.4	49.4
Non-food Crops	16.3	16.3	19.3	16.7	15.5	15.3	15.3	15.9
Livestock and Products	10.7	11.6	9.1	11.0	12.4	12.5	12.8	13.2
Forestry	9.2	9.7	6.8	6.4	6.9	6.4	6.2	6.4
Fisheries	10.2	10.8	12.0	12.0	13.5	14.4	14.5	15.1
Sector as a whole	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Statistical Yearbook, BPS. *1: Preliminary figures in 2002 and 2003.

21-5 Among the sub-sectors, fisheries have shown a relatively high growth rate through

1 ADB Key Indicators 2003: Education for Global Participation

the years, followed by livestock, and recently growth rate of non-food crops has been high also (refer to the table below). On the other hand, farm food crops indicate low growth rates. In 2003, the rate achieved a 1.6% growth, which is as almost same rate as the annual average population growth rate of 1.49%[2] during the 1990–2000 period, but generally lower. This implies that the farm food crop sector will face severe difficulty in absorbing the increased population if it is to maintain the same level of income.

GDP Growth Rate of the Sub-sectors of the Agriculture, Forestry and Fisheries Sector
（1993 constant price）

（Unit: %）

	1996	1997	1998	1999	2000	2001	2002*1	2003*1
Farm Food Crops	2.1	-2.9	2.0	2.0	1.5	-0.8	0.8	1.6
Non-food Crops	4.5	1.4	0.1	1.9	0.2	5.7	4.2	5.2
Livestock and Products	5.1	4.9	-13.9	6.2	3.3	3.6	2.4	3.5
Forestry	2.2	11.6	-8.5	-4.6	1.6	2.6	1.9	-0.4
Fisheries	5.4	5.8	1.9	6.1	5.0	4.7	3.9	4.0
Sector as a whole	3.1	1.0	-1.3	2.2	1.9	1.7	2.0	2.5

Source: Statistical Yearbook, BPS. *1: Preliminary figures in 2002 and 2003

21-6 The agriculture, forestry and fisheries sector employs approximately 45% of the total working population (refer to the table below). Out of the total employment population in this sector, proportion of agriculture and others is 97% and that of fisheries is 3% according to the 2000 population census. Export from this sector, including processed goods, was valued at US$10 billion, which is equivalent to 16% of the country's total export earnings of US$61.1 billion in 2003 (refer to Table 2.1.2). The agriculture, forestry and fisheries sector thus significantly contributes to foreign currency earnings in the Indonesian economy.

Employment Situation in Indonesia

	2000*		2001		2002		2003	
	People in thousands	%	People in thousands	%	People in thousands	%	People in thousands	%
Working Population	95,650.96	100	98,812.45	100	100,779.27	100	100,316.01	100
Employed Population	89,837.73	93.9	90,807.42	91.9	91,647.17	90.9	90,784.92	90.5
Unemployed Population	5,813.23	6.1	8,005.03	8.1	9,132.10	9.1	9,531.09	9.5
Employment by Sector								
Agricu./Forestry/Fisheries	40,676.71	45.3	39,743.91	43.8	40,633.63	44.3	42,001.44	46.3
Mining & Manufacturing	11,641.76	13.0	12,086.12	13.3	12,741.80	13.9	11,656.39	12.8
Construction	3,497.23	3.9	3,837.55	4.2	4,273.91	4.7	4,106.60	4.5
Others	34,022.03	37.9	35,139.83	38.7	33,997.83	37.1	33,020.49	36.4
Total Employed Population	89,837.73	100	90,807.42	100	91,647.17	100	90,784.92	100

Source: Labor Force Situation in Indonesia, BPS for 2001~2003, Central Bureau of Statistics of Indonesia （http://www.bps.go.id） for 2000 *: Exclude Maluku Province

2: Statistical Yearbook of Indonesia, 2003

21-7 It can be concluded that the agriculture, forestry and fisheries sector plays an important role in the Indonesian economy, producing 17% of the GDP, providing employment opportunities and earning foreign currency. However, the sector is performing with low economic growth and facing a lot of difficulties, as described in Chapter 3.

2.2 Present Financial Conditions

22-1 The GOI has attempted to regain its trust in the international market by implementing comprehensive reform for the economic structure based on the agreement with the IMF. In implementing this reform, particular attention has been paid to the reform program for recovering soundness in the finance sector, rearranging private banks and a policy for easing restrictions. At present, economic situation is gradually being recovered as mentioned above, therefore this reform program expired on 31st December 2003 and the post-program monitoring is now under implementation.

22-2 Regarding the current financial conditions, the national budget (state revenue and expenditure) for FY2002 to FY2004 is shown in Table 2.2.1. The national budget (state revenue and expenditure) for FY2004 is Rp.374.4 trillion for expenditure and Rp.349.9 trillion for revenue, resulting in a deficit of Rp.24.4 trillion (1.22% of expected GDP), which is to be offset by the foreign loan, the privatization of state-owned enterprises, and the sell of the assets of the Indonesian Bank Restructuring Agency (IBRA). The balancing funds for regional governments under the decentralization policy are Rp.112.2 trillion. Most of them are to be distributed to districts (Kabupaten) and cities (Kota) rather than to provinces. The balancing funds consist of i) revenue sharing (i.e. the share of regional governments in the revenue from the land-building tax, the land-building transfer tax, and natural resources), ii) general allocation funds (DAU), which the local governments can use for various purposes, and iii) specific allocation funds (DAK) for limited uses. These three elements respectively occupy 24%, 73%, and 3% in the budget of the balancing funds: the share of the General Allocation Funds is the largest. Structure of the state revenue and expenditure during FY2002 to 2004 is shown in Figure 2.1, 2.2 and 2.3.

22-3 The total amount of the development expenditure and foreign loan in 2004 is Rp.70.9 trillion (18.9% of the expenditure). The detailed classification of the amount is shown in Table 2.2.2, though the values in the table are from the initial budget. According to this table, 7.0% of the total development expenditure is distributed to the agriculture, forestry and fisheries sector. In the distributed expenditure, the three sub-sectors (i.e., agriculture including livestock, forestry, and fisheries) occupy 69%, 2%, and 31% respectively. When comparing these figures with their shares in the GDP (agriculture: 79%, forestry: 6%, and fisheries: 15%), it should be noted that the financial distribution to the fisheries sub-sector is relatively large. The development expenditure is categorized into 20 items by the sectors under the present financial system, and will be into 11 items by the programs from FY2005.

22-4 One of the most serious issues in the Indonesian economy is external debt. As can be seen in Table 2.2.3, the total amount of external private and public debts was US$140.7 billion at the end of December 2003 (private debts: US$54.0 billion, public debts: US$86.7 billion), which was around 70% of the nominal GDP in 2003 (US$211.0 billion). Total external debts at the end of December 2000 were US$146.7 billion and nominal GDP was 137.6 billion. At the Public Creditor's Meeting (Paris Club) held in April 2002, it was agreed to defer an amount of US$5.4 billion, which is due by the period from April 2002 to December 2002. The rescheduled amount is almost the entire amount requested by the GOI, and this is the third rescheduling for Indonesia since the Asian crisis. It is worth noting that US$2.7 billion of the US$5.4 billion is owed to the GOJ.

22-5 In analyzing the state finance of Indonesia, the major issues, in addition to the external debts, are i) the burden of domestic public debt, ii) scarce lack of subsidies and iii) financial decentralization. The domestic public debt of Indonesia is estimated to be Rp.624 trillion (equivalent to U.S.$73.7 billion at the end of December 2003). Obviously, this national debt is a heavy burden for the GOI, which only has Rp.375 trillion for expenditure in the state budget (realization of 2003). The GOI is then required to seriously tackle the debt redemption, which will commence from 2004. The government subsidies are allocated to oil, gas and electricity, among others. However, the amount of the subsidies in the FY2004 budget is reduced to Rp.26.4 trillion (Rp.44 trillion as a realization in FY2003), which will increase the costs of fuel, including bus fare and the gas rate. In the decentralization of finance, the critical issue is whether the local governments can efficiently use authority and funds given by the decentralization policy. Moreover, there is discourse over their capability of receiving and managing loans from international agencies and donors.

22-6 Indonesia thus faces severe economic conditions. The reconstruction of state finances is an urgent issue for the GOI. Facing the serious problem of external debts, the GOI plans to reduce the amount of foreign loans, which will induce further serious situations for state expenditures. The serious economic and financial conditions in Indonesia force the GOJ to consider effective ways to cooperate with the country.

2.3 Present Condition of Poverty

23-1 The population below the poverty line[3] rapidly declined between the mid-1970s and 1996, one year before the economic crisis. The number of poor people in 1996 was 22.5 million, which represents 11.3% of the total population in Indonesia. However the Asian crisis had a negative impact on the people. A household economic survey conducted in August 1999 estimated that the poor population increased up to 37.5 million, 18.2% of the total population, which is more than 1.5 times that in 1996. Particular attention should be paid to the densely populated Java Island, where the number of poor people increased from 4.2 million to 10.0 million, causing high population pressure in urban areas.

Population below the Poverty Line (1976 - 2003)

	Poverty-line Population (million)			Poverty Rate （%）		
	Urban	Rural	Country	Urban	Rural	Country
1976	10.0	44.2	54.2	38.8	40.4	40.1
1980	9.5	32.8	42.3	29.0	28.4	28.6
1990	9.4	17.8	27.2	16.8	14.3	15.1
1996	7.2	15.3	22.5	9.7	12.3	11.3
1998	17.6	31.9	49.5	21.9	25.7	24.2
1999	12.4	25.1	37.5	15.1	20.2	18.2
2000	12.3	26.4	38.7	14.6	22.4	19.1
2001	8.6	29.3	37.9	9.8	24.8	18.4
2002	13.3	25.1	38.4	14.5	21.1	18.2
2003	12.2	25.1	37.3	13.6	20.2	17.4

Source: Statistical Yearbook of Indonesia

23-2 Taking the rapid increase of poverty into account, the GOI implemented the Social Safety Net (SSN) Program from 1998 to 2001, which aims to alleviate the effects of the Asian crisis on socially disadvantageous people, such as the poor and the unemployed. For the SSN program, Rp.180 trillion was spent during the three years. In this period, the Program dealt with the prevention of student dropouts from primary and secondary schools, the assurance of access to public health services, the prevention of the deterioration of children’s nutrition and the creation of job opportunities for the unemployed.

23-3 Although the number of poor decreased with the implementation of the SSN Program (poor population in 2003 is 17.4% out of total population), poverty is still

3 The poverty line was defined to be the income of Rp.89,845/month for urban areas and Rp.69,420/month for rural areas as of August 1999.

one of the main factors of social unsuitability in Indonesia. The alleviation of poverty, which includes the poor stratum in the social structure, transitional poverty caused by the economic crisis and the relative poor in unfair income distribution, is crucial issue in the development of Indonesia.

23-4 At present, in place of the SSN Program, which was implemented for emergency purposes, the GOI is to prepare and implement a long-term and sustainable poverty alleviation program. In addition, the poverty alleviation is included in the National Development Plan 2000-2004 (PROPENAS) as a major policy target. The PROPENAS is to tackle structural improvement over the period from 2000 to 2004. In the new national development plan (RPJM) formulated in 2005, this policy is still important. Government of Indonesia is preparing PRSP (poverty reduction strategy paper, as described in Sub-chapter 4.1, 4.3 hereof) assisted by World Bank currently in April 2005, which indicates that poverty alleviation is continuously regarded as a major policy target.

23-5 Under this situation, the poverty alleviation is taken up in the assistance programs of the World Bank, Asian Development Bank (ADB) and other major donor countries as a major issue, as described in detail in Sub-chapter 4.4 hereof.

Social Indices Concerning Poverty

Items	1980*1	1999*1	2002
Average life span (year)	Male: 50.9; Female: 54.0	Male: 64; Female: 68	Male: 64; Female: 68*2
Death rate of infants less than one year old (/1,000)	112	50	35*3
Death rate of infants from 1 to 5 years old (/1,000)	125	60	46*3
Maternity death rate	360.0 (1984-85)	390.0 (1989-94)	307.0 (1998-2002)
Average delivery (times)	4.7	2.8	2.6 (2002-2003)*3
Literacy rate of adults (%)	Male: 77.7; Female: 57.7	Male: 89.6; Female: 78.0	Male: 93.5; Female: 85.7*2
Attendance rate for elementary school (gross)	Male: 114.6; Female: 99.7	Male: 116.9; Female:112.3	Male: 106.0; Female:105.6 (2003*4)
Attendance rate for junior high school (gross)	Male: 34.7; Female: 23.3	Male: 55.8; Female: 47.6	Male: 79.9; Female: 82.4 (2003*4)

(Source) *1: ADB, Country Operational Strategy: Indonesia, March 2001, *2: National Human Development Report 2004 The Economics of Democracy BPS, Bappenas, UNDP, *3: Indonesia Demographic and Health Survey 2002-2003, *4: Statistics of Education, 2003

23-6 From food and agricultural viewpoints, the expansion of income differentials between urban and rural areas, low fulfillment of basic human needs such as education, nutrition and medical services and incomplete basic infrastructure are deemed to be major causes for poverty. In addition, poverty-related malnutrition is a big problem. It is noted that malnutrition and a deficiency of micronutrients are the main causes for sickness and death of infants aged less-than 5 years. It is also considered that malnutrition in adults, particularly when resulting in anemia, weakens tolerance against infectious diseases and is deemed to be the main causes for death in maternity prevailing in South East Asia, including Indonesia. Furthermore, 39% of infants aged less than 5 years are sulfuring from chronic malnutrition and 30.5% of infants aged 6-23 months are suffering from a deficiency of protein[4]. In tackling the alleviation of poverty in the agriculture and fisheries sector, these serious matters should be taken into consideration.

23-7 In addition, the calorie intake in 1996 was 2,020 cal/person/day (1,984 cal/person/day in the urban area and 2,040 cal/ person/day in rural areas)[5]. However, the Asian crisis had negative impacts on people in calorie intake: in 1999 the intake reduced to was 1,849 cal/person/day (1,802 cal/person/day in urban area and 1,880 cal/person/day in rural areas)[4]. As the GOI's target is now 2,500 cal/person/day, it is necessary to consider how to improve the nutritional condition of the people.

23-8 The above discussion indicates that the development of agricultural and fisheries villages is of great importance as a measure for poverty alleviation

2.4 Present Situation of Decentralization

24-1 In 1999, two laws concerning decentralization were enacted: Law No. 22 "Regional Governance" and Law No. 25 "Fiscal Balance between the Central Government and its Regions." These laws have come into operation, and decentralization is now in progress. Under these laws, the major functions of the central government are limited to five fields (i.e., international relations, national defense/security, justice, finance and religion) and other fields such as national development planning at the macro level, development management policies and natural resource management. Other authorities have largely been transferred to districts (Kabupatens) and cities (Kota). Accordingly, it is required that regional economic promotion and development be implemented by the initiative of regions based on their diversity, rather than through the central government as in the previous system.

24-2 With the decentralization, a number of public servants, facilities, and archives have been transferred from the central government to regional ones, and this was largely completed by September 2001. Totally, 239 provincial level offices of the central

4 Assessment of Poverty in Indonesia, ADB Oct.2000

5 Assessment on Indonesian Food Security Situation, Ministry of Agriculture 2001

governments, 3,933 district/city level offices, and over 16,000 implementing units were turned over to provinces, districts, and cities. With these turnovers, almost 2 million of the public servants were transferred to the regional governments[6]. While the facilities and public servants have been transferred smoothly, such problems were reported as the excess number of personnel in the regional governments and limited capability of the local government to conduct various services.

24-3 The process of decentralization was carried out assuming the following schedule tabulated below. However, the preparation of government regulations, which are necessary to establish the framework of the two laws mentioned above, has been behind the schedule. Moreover, there was the inconsistency and contradiction between the Law No. 22 “Regional Governance” and other regulations related to decentralization. In decentralization, thus, several problems still remain in the aspects of institutions and policy. Therefore, the two laws were revised through the wide discussion across the country, particularly on the direct election of regional heads, strengthening of the roles in the provincial government, improvement of civil service management, increase of general allocation fund (DAU), increase of regional share of oil and gas revenues and property tax revenue, etc.

Implementation Schedule of Decentralization

Period	Step	Content
Until January 2001	Preparatory work for implementation of decentralization	・Establishment of government regulations concerned.
2001	Begin implementation of decentralization	・Transfer of authority, staff, assets and revenue source to the regional governments that have capability to implement decentralization.
2002 ~ 2003	Implementation of decentralization	・Completion of decentralization for the regional governments that will not have been able to implement the decentralization by 2001. ・Capacity building for staff of the regional governments.
2004 ~ 2007	Strengthening of decentralization	・Improvement of the strategy and concept of decentralization. ・Adjustment of discrepancy between the concept of the decentralization and legal framework. ・Abolition and integration of the regional governments that will not be able to implement the decentralization.
After 2007	Stabilization of decentralization	・Continuous improvement of decentralization.

24-4 The measures to promote decentralization are summarized below[7].

- To ensure that the distribution mechanism of the general allocation funds (DAU) is fairer and more transparent;

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6 Decentralization News, GTZ, March 2001.

7 Indonesia, the Imperative for Reform, World Bank, November 2001.

- To revise Law No. 22 "Regional Governance" by considering which revisions prevent the pitfall of the law.
- To render regulations enacted by regional governments invalid if they are not consistent with the national regulations.
- To establish a comprehensive monitoring system to promptly identify and manage the problem in decentralization.
- To urgently prepare the framework for distributing the specific allocation funds (DAK) and the development expenditures, so that regional governments can implement projects in a timely manner.
- To provide financial fundsto allow regional governments to conduct programs for building the capacities of the staff members.

24-5 Of the countermeasures above, the capacity building of local staffs is considered as the bottleneck in the process of decentralization, thus resulting in the inefficient and ineffective provision of local governments' services. In the services provided by the agriculture and fisheries sector, the following major issues are to be considered.

24-6 The level of services for extensions is diverse between the respective districts, as they perceive different needs for and importance of agricultural extensions according to their development strategies. In this situation, the Ministry of Agriculture is seeking a system that provides rational extension services with nation-wide balance and standard. In addition, some facilities managed by the Ministry have been transferred to the local government in the fields of research and agricultural education. In some cases, the operation and maintenance of these facilities are affected by insufficient budget allocations.

24-7 With regard to irrigation, the regional offices (Kantor Wilaya) of the Ministry of Settlement and Regional Infrastructure (Ministry of Public Works at this moment) were re-organized and transferred to the provincial government. For the operation and maintenance (O&M) of irrigation facilities, relevant laws and regulations were amended in 2001 to hand over to the water users association. However, the new Water Resources Law changed the policy of irrigation O&M and rehabilitation from hand over to participation of WUA, and new regulations are under preparation.

24-8 For fisheries sector, the MMAF formulates the government policies, and the local government implements the policy. The powers of implementation has gradually been delegated to the local government. However, most of the local governments are not able to allocate their budget for implementation, therefore, not all districts have fisheries services (many of fisheries services are merged with agriculture, forestry or livestock services). Consequently it is difficult to implement the policy.

24-9 In order to grasp the present condition of decentralization, legal document of the relevant ministries are collected and compiled, and a survey was conducted on regional administrative organization, administrative capacity and financial situation in Kabupatens of the South Sulawesi Province, as presented below.

24-10 Under the decentralization, authorities have been transferred to the kabupaten and municipality government. The provincial governments supervise and monitor the kabupaten and municipality governments through coordination with the central government. The kabupaten and municipality governments were previously positioned under the province, however, their position are now parallel to the province in implementing the authorities.

24-11 Tasks transferred to the regional government are generally categorized in terms of implementation: 1) decentralization task, 2) de-concentration task, and 3) co-administration (or supporting) task.

24-12 Decentralization task is to be implemented by the regional government using its own budget and its responsibility remains to the regional government. De-concentration task is to be implemented by offices of central or provincial government in region with necessary budget from central or provincial government. Co-administration task is to assigned by the central government along with necessary budget, but the responsibility remains with the central government. In practical manner, task is implemented through combining decentralization, de-concentration and co-administration, due to limitation of budget and capacity at the kabupaten level.

24-13 Regarding the food security, the food security council is coordination body to be established in the central, province and kabupaten level according to the President Decree. The Agency for Food Security is the secretariat for the National Food Security Council, and the food security agencies have been established at each level of regional government. Task of the food security agencies at regional government level is implemented through combination of decentralization, de-concentration and co-administration.

24-14 In the South Sulawesi Province, organization structure has been re-shaped due to decentralization. The governor's secretariats are reduced in size and assistant governors and their offices were abolished. On the other hand, secretariats of the house of representatives as well as dinas (service department) and badan (agencies) were increase, and total number of dinas and badan increased from 48 to 53. One of the reasons is that the regional office of the central government was abolished and transferred to the regional government. Dinas and agencies have been increased from 18 to 32.

24-15 Regarding agriculture and fisheries sector, 1) Dinas Food Crops and Horticulture, 2) Dinas Fishery and Marine, 3) Dinas Livestock, 4) Dinas Eastate, 5) Dinas Cooperative and SME, 6) Dinas Water Resources Management, and 7) Agency for Regional Food Security Agency. Each Dinas were established according to the relevant regional regulations, and their main tasks are the authority beyond the kabupaten. The Regional Food Security Agency was established through re-organizing the regional offices of the Ministry of Agriculture in 2001.

24-16 Revenue of the provincial government of South Sulawesi has been increasing from Rp.36.5 billion in 2000 to Rp.73.4 billion in 2003, however, the year 2000 covered 9 months from April to December due to the transition of the fiscal year. Proportion from the direct tax and other income in the total revenue has increased from 20% in 2000 to 40% in 2003. On the other hand, incomes from the central government as tax share has decreased its proportion from 70% in 2000 to 45% in 2002. This indicates that dependence on the central government has been decreasing in the revenue of the provincial government.

24-17 Regarding expenditure of the provincial government, proportion of the current expenditure is about 50% of total, covering personnel, maintenance, etc. Another 50% is for development expenditure for each sector. Major sectors to which the higher proportion of expenditure is allocated are 1) trade, unfolding regional initiative, regional finance and cooperatives, 2) transportation, 3) development subsidies to lower level government, and 4) agriculture and forestry. High allocation to the trade and regional initiatives resulted in increase of income of regional governments through tax and duties as well as promotion of small and medium enterprises, which have been expand income of the people.

24-18 Under the decentralization, bupati is responsible to the kabupaten assembly in implementing the authorities. According to the interviews to the officials of local government, the bupati has been implementing the authorities through obtaining the approval from the kabupaten assembly, and also reporting the results of implementation to the kabupaten assembly. This indicates that the decentralization is in the process of implementation.

24-19 Decentralization status was studied in 8 kabupatens in South Sulawesi province in view of legal document, government organization, human resources, finance and process of development plan formulation. For implementation of decentralization, bupati decrees and regional regulations needed to be issued according to the law, however, and the number of legal document issued ranges from 15 to 751 depending on kabupaten. This is due to difference in emphasis on authorities and understanding by kabupaten. In some kabupatens, although many legal documents were issued, many of them are focused on the regional original revenue (PAD) with less concern on the natural resources management.

24-20 In all eight kabupatens the government organization has been changing and such technical agencies as dinas (services), badan (agencies) and kantor (offices) have been reorganized. Therefore, number of dinas/badan/kantor shows wide variation ranging from 16 to 32 by kabupaten. Dinas have been established separately for agriculture and fisheries sectors in each kabupaten. However, within the agriculture sector, some kabupatens established single dinas covering all subsectors, and others established separate dinases for food crops, horticulture and livestock, mainly due to different focus for agriculture sub-sector. In case of the South Sulawesi, extension services[8] are eliminated at some kabupaten as shown in Table 2.4.1.

24-21 Total number of staff in kabupaten ranges from 1,780 to 7,590, and the ratio of population to kabupaten staff ranges from 38 in Selayar to 200 in Gowa, indicated as good according to the criteria of Ministry of Home Affair (ratio < 400: good, ratio between 400 and 500: less good, ratio > 500: poor). Selayar shows quite low ratio of 38 and this is because that this kabupaten consists of small islands. Regarding education level of staff, more than half are senior high school or lower. Kabupaten governments send their staff to the training institute in the province. Staff attended to the training is less than 10% except Bulukumba.

Number of Staff and Education Level

	Total Staff (A)	Population (B)	Pop./ Staff (B/A)	Senior high school or low	Diploma or higer
Selayar	2,763	103,892	37.6	58.7%	41.3%
Bulukumba	1,781	353,907	198.7	52.9%	47.1%
Jenepont	4,762	317,481	66.7	74.8%	25.2%
Gowa	7,594	522,105	68.8	64.2%	35.8%
Pangkep	4,848	265,673	54.8	50.4%	49.6%
Wajo	6,092	359,326	59.0	52.6%	47.4%
Mamuju	2,154	292,087	135.6	62.3%	37.7%
Luwu	4,739	403,391	85.1	45.4%	54.6%
Total	34,733	2,617,862	75.4		

24-22 The revenue of kabupatens has been increasing with the ranges from Rp.81 billion to Rp.173 billion in 2001, Rp.116 billion to Rp.214 billion in 2003, and Rp.99 billion to 277 billion in 2003. Most of the revenue is the counter balance fund from the central government with the share of total revenue of 82% to 80%. Original

8 including dissemination of technologies and information as well as training and guidance of farmers and fishermen, contains a part of awareness campaign

revenue (PAD) of the kabupaten is 4% to 5% on average, however, PAD shares at 8% and 11% Gowa and Pangkep, respectively (refer to Table 2.4.2).

24-23 Expenditure is divided into the routine expenditure (staff salary, office maintenance cost, etc.) and development expenditure. Routine expenditure ranges from 50% to 80% of total expenditure, however, average in all the kabupatens decreased from 73% in 2002 to 67% of total expenditure (refer to Table 2.4.3). Development expenditure was increasing from 27% in 2001 to 33%. However, development expenditure for agriculture and fishery sector ranges from 1.4% to 14.4% of total development expenditure, and average 6.5% in 8 kabupaten. Since 2003 the accounting system of local government to performance budget, therefore, comparison cannot be made with the previous years.

24-24 Bottom-up process based on the participatory approach has been applied for formulation of kabupaten development plan. This process starts consultation meeting so called "Musbandes" in village level for correction of needs from habitants, and the results are sent to the Regional Working Unit for Development (UDKP) at kecamatan level. The results of UDKP and plans prepared by dinas are discussed in the forum of "Rakorbang" at kabupaten for finalization of the annual development. In order to evaluate effectiveness of this mechanism, document related to the plan are evaluated. The related documents includes Renstra (vision, mission, strategy and direction of policy), Repetada (Five-year development plan), and documents by Musbandes, UDKP and Rakorban. The evaluation results show UDKP documents is not always same direction stipulated in the Repetada, and this situation results in the bias of the activity plan between requirement of the community and kabupaten priorities. Annual plan prepared by dinas is based on the Renstra, and not always based on the aspiration from the community. On the other hand, in many case, the habitants at the community are not able to evaluate the potential and capability properly, and they confuse wish or desire as their needs. Under this situation, various pilot projects have been launched for participatory development program to assist the government and stakeholders in planning process.

24-25 In view of irrigation O&M and agricultural extension, the present institutional framework and financial situation are studied in Jenepont and Luwu. The institutional framework for irrigation O&M for Jenepont and Luwu is illustrated in Figures 2.4.1 and 2.4.2 respectively. Under the present framework the irrigation systems constructed by the central government are basically to be transferred to the province 2 years after the construction, and Balai PSDA of the provincial government conducts O&M. Kabupaten government also carries out O&M for irrigation schemes through Dinas Kimpraswil. Institutional framework of agricultural extension in Jenepont and Luwu is illustrated in Figures 2.4.3 for Jenepont and 2.4.4 for Luwu, along with the framework before decentralization. Expenditure for O&M in kabupaten is about 1% of the total expenditure, and their fund sources are general allocation funds (DAU) and specific allocation fund (DAK) through decentralization line. For agricultural extension, expenditure of kabupaten is 0.14% to 0.16% and the fund sources are DAU, DAK and PAD (original revenue of kabupaten).

2.5 Economic Globalization

25-1 With the establishment of the ASEAN Free Trade Area (AFTA) on January 1, 2002, GOI is to take part in the regional agreement of free trade. In 1992, the ASEAN-starting members of 6 nations, i.e., Indonesia, Brunei, Malaysia, Philippines, Singapore, and Thailand, adopted the AFTA, thereby were reaching the agreement to reduce tariff rates by 0-5% by 2003 for various goods from manufacturing to agriculture, i.e., the Common Effective Preferential Tariff (CEPT) scheme. Now regional tariffs on 99.6% of products in the Inclusion List among 6 nations within the 0-5% range as of September 2003. Furthermore, the AFTA aims at removing all tariffs in the agreement region by 2010 (and for the new members of Cambodia, Laos, Myanmar, and Vietnam, by 2015).

25-2 The CEPT scheme consists of the following four lists.

Inclusion List	The list of goods, for which tariff is reduced by 0-5% by 2003. Moreover, if goods are added to the list, several conditions are imposed, e.g., the abolition of 1) non-tariff barriers for the goods within 5 years, 2) the restriction on the traded amount at the time of adding to the list, and 3) the restriction on exchange and the increase in the tariff rate.
Temporary Exclusion List	The list of goods, for which tariff is exempted temporarily. The goods in the list are to be added to the inclusion list from 2001 to 2006, and the tariffs for them are reduced by 5% in the 2 years from 2006.
Sensitive List	The list of goods, which are non-processed agricultural products with the possibility of being included in the inclusion list within 17 years from 1998.
General Exemption List	The list of goods, which are permanently out of target of tariff reduction.

25-3 According to the ASEAN secretary, Indonesia has 7,260 items for the CEPT scheme including 6,675 items in the inclusion list, 517 in the temporary exclusion list, 23 in the sensitive list, and 45 in the general exemption list. The sensitive list can be classified into two categories, namely, sensitive and highly sensitive lists. For Indonesia, the former list includes garlic, cloves, wheat, and soybeans, and 12 items of their processed goods, while the latter list is composed of rice, sugar, and

11 items of their processed goods. These agricultural products (and most of the processed products) are protected from tariff reduction by 2010. However, unlike the goods in the sensitive lists, many food and estate crops are forced to go to competitive markets in the ASEAN region.

25-4 In addition to the AFTA, there are other regional and global agreements, which involve Indonesia (i.e. those based on the Asia-Pacific Economic Cooperation (APEC) and World Trade Organization (WTO) regimes. The country is therefore heading towards globalization of the economy. The economic globalization requires the GOI to eliminate trade barriers directly, and to indirectly gain comprehensive competitiveness in production, processing, and marketing for strategically significant sectors. This applies to the agriculture and fisheries sector of the country.

CHAPTER 3 SECTOR ANALYSIS

3.1 Agriculture Sector

3.1.1 Land Use

(1) Current Situation

311-1 In 2002, out of 1.89 million km^2 area of the whole country, 1.10 million km^2, or 58% of the total area, is categorized as forest. The remaining 0.67 million km^2 (67 million ha) is categorized into paddy fields, upland arable land, grass land/fallow, dikes, ponds, woodland, estates, and so on. Table 3.1.1 shows land utilization by province except Maluku and Irian Jaya, and summarized in the following table. Around 7.75 million ha is utilized as paddy fields, out of which 43% are located in Java Island, while 27% in Sumatra Island. On the other hand, the predominant area for estates is Sumatra Island.

Land Use (2002)

(Unit: 1,000ha)

Region	Paddy Fields	Upland & Arable land	Grass Land & Fallow	Swamps, Fish Pond	House Compound	Estates & Wood Land	Total
Sumatra	2,104	4,839	2,282	1,900	1,813	11,626	24,565
Java	3,317	3,091	252	66	1,774	1,125	9,625
Bali, NTT	419	1,153	1,557	9	262	956	4,355
Kalimantan	1,008	2,208	5,366	2,698	980	7,576	19,837
Sulawesi	901	2,072	1,597	146	483	3,429	8,629
Maluku/Irian Jaya	-	-	-	-	-	-	-
Whole country	**7,748**	**13,364**	**11,055**	**4,820**	**5,311**	**24,712**	**67,010**

Note: NTT=Nusa Tenggara Timur. No data available for Maluku & Irian Jaya.
Source: Agriculture Survey, Land Area by Utilization 2002, CSB

311-2 Table 3.1.2 shows the annual transition of land utilization during the period from 1995 to 2002. As shown in the table, 735,900 ha of paddy fields and 1,225,200 ha of wood lands disappeared within the seven years. In contrast, uplands, meadows, shifting cultivation area, fallow lands, and estate crop area are on the rise. According to a report by MOA, it is estimated that on Java Island the conversion of irrigated paddy fields to other land uses is around 30,000 ha to 50,000 ha in Java Island per annum due to rapid urbanization and industrialization, insufficient land use plans, etc.[1]

311-3 According to the population census in 2000, there are 120 million people in Java Island, which is equivalent to 60% of the entire Indonesian population of 206 million as shown in Table 3.1.3. The Intercensal Population Census 1995 of

1: In the period of 1983 to 1993, about 425,000 ha of irrigated rice land and 510,000 ha of dry land area were disappeared from rice production on Java to become housing and industrial estates. (Strategy Plan 1999-2004, Ministry of Agriculture, July 1999)

Central Bureau of Statistics estimates around 29.7 million households in rural area of Indonesia. The number of households in rural area by land holding size is shown in Table 3.1.4 and is summarized as follows:

Number of Households by Land Holding Size (Rural area)

Region	Landless	< 0.25 ha	0.25 ha to 0.5 ha	0.50 ha to 1.0 ha	1.0 ha to 2.0 ha	2.0 ha <	Whole
Sumatra	29%	5%	9%	15%	22%	20%	100%
Java	44%	20%	16%	12%	6%	2%	100%
Bali, NTT	30%	9%	12%	16%	21%	12%	100%
Kalimantan	27%	4%	7%	10%	22%	30%	100%
Sulawesi	25%	4%	8%	19%	27%	17%	100%
Maluku	16%	2%	4%	14%	31%	33%	100%
Country	**37%**	**14%**	**13%**	**14%**	**13%**	**9%**	**100%**

Source：Intercensal Population Census 1995, Central Bureau of Statistics.

311-4 As shown in Table 3.1.4 and the above table, the proportion of landless households in rural area is estimated at 37% of total households, of which around 70% of this number are in the Java Region. More than 90% of households in rural area of the Java Region are categorized as landless or small scale households less than 1.0ha of farm land. The proportion of large scale households, more than 1.0ha, is generally higher in Regions other than Java Region. Especially Kalimantan and Maluku Regions have the higher tendency.

311-5 The average size of paddy fields per farm households in Indonesia is 0.4 ha (Agricultural Census 1993), while the average holding size of paddy fields in Java is estimated at 0.28ha. It appears that land segmentation in Java has been caused by population increase as well as inheritance etc., and the household income depends on non-farm income (refer to Section 3.1.7). Therefore, some farmers have abandoned their farmland and seek additional non-farm income.

311-6 Currently, the Regional Development Planning Agency (BAPPEDA) in some provinces has their own land use plans, but the land use has not been controlled based on the plan. Illegal land conversion has been also taking place. Some incidents of illegal agricultural cultivation are observed in some estate crop areas and forest reserves in Sumatra and Kalimantan, while some small farmers have been known to invade large farms for illegal cultivation in Java Island. Although this situation was occurring before decentralization, it has been expanding under the process of decentralization. Furthermore, over-population, and leftover farm (fallow lands), etc. are important subjects in relation to land use (refer to Table 3.1.2). Uncontrolled land conversion is a complex problem from the viewpoints of stable supply of food and environmental conservation. In addition, the economic gap between urban and rural areas is expanding. These social circumstances in turn have a major influence on the social environment of rural areas.

311-7 Directorate Generals (DGs) in the MOA have their own "Strategic Plan for Mid-term Development (2001 to 2004)" based on the Five Years Agricultural Development Plan[2], and the Annual Action Plans of DGs are prepared based on their own Strategic Plans.

311-8 Various numerical targets are available in those Strategic Plans. Originally those figures were prepared by local government, and then the MOA compiled them through the Regional Meetings, in which the Ministry and local governments meet together and conduct discussion about implementation of the annual action plan as well as project monitoring and evaluation. These numerical targets for the Strategic Plans and Action Plans are directly derived from past performance, but the self-sufficiency rations of major crops, the land use plan, etc., considering regional characteristics, are not adopted[3].

(2) Subjects to be Considered in the Future

311-9 It is necessary to rehabilitate the land use law and other relevant laws and regulations, and also promote implementation of a systematic land use plan that operates adequately. In terms of promotion of land use plan, it is necessary to establish harmonized countermeasures, taking into consideration sustainable agricultural development, environmentally sound agriculture, and the social environment concerning population issues, etc.

3.1.2 Agricultural Production

(1) Crop Production

312-1 The major food crops in Indonesia are paddy, soybean, cassava, sweet potato, peanut, maize, etc. As shown in Table 3.1.5, in 2002, around 80% out of total production in the whole country are produced in Java and Sumatra Islands, except for sweet potato. As for paddy production, a unit yield of 4 to 5 ton/ha is achieved in Bali/Nusa Tenggara, Sulawesi and Java Islands.

312-2 Table 3.1.6 and Figure 3.1.1 show the transition of harvested areas and the production by major food crop during the period from 1968 to 2003. The transition for the last seven years is given as below:

2: Refer Chapter 4 for National Agricultural Development Plan of Ministry of Agriculture. The Ministry has revised the development Plan as needed, so the latest version is Program *Pembangunan Pertanina* 2001-2004, December 2001. Further *Penjabaran Program dan Kegiatan Pembangunan Pertanian 2001-2004* is available as summary of the Development Plan by commodity.

3: *Program dan Rencana Kegiatan Pembangunan Agribisnis Berbasis Komoditas*: Concerning priority districts for development by commodity, arranged in the basis of the request from local governments.

Harvested Area and Production of Major Food Crops

	Major Food Crop		1997	1998	1999	2000	2001	2002	2003
Paddy	Production	(1000 ton)	49,377	49,237	50,866	51,899	50,461	51,490	52,079
	Harvested Area	(1000 ha)	11,141	11,730	11,963	11,793	11,500	11,521	11,477
	Unit Yield	(ton/ha)	4.4	4.2	4.3	4.4	4.4	4.5	4.5
Soybeans	Production	(1000 ton)	1,357	1,306	1,383	1,018	827	673	672
	Harvested Area	(1000 ha)	1,119	1,095	1,151	824	679	545	5327
	Unit Yield	(ton/ha)	1.2	1.2	1.2	1.2	1.2	1.2	1.3
Cassava	Production	(1000 ton)	15,134	14,696	16,459	16,089	17,055	16,913	18,474
	Harvested Area	(1000 ha)	1,243	1,205	1,350	1,284	1,318	1,277	1,240
	Unit Yield	(ton/ha)	12.2	12.2	12.2	12.5	12.9	13.2	14.9
Sweet Potato	Production	(1000 ton)	1,847	1,935	1,666	1,828	1,749	1,772	1,998
	Harvested Area	(1000 ha)	195	202	172	194	181	177	198
	Unit Yield	(ton/ha)	9.5	9.6	9.7	9.4	9.7	10.0	10.1
Peanuts	Production	(1000 ton)	688	692	660	737	710	718	785
	Harvested Area	(1000 ha)	628	651	625	684	655	647	683
	Unit Yield	(ton/ha)	1.1	1.1	1.1	1.1	1.1	1.1	1.1
Maize	Production	(1000 ton)	8,771	10,169	9,204	9,677	9,347	9,654	10,910
	Harvested Area	(1000 ha)	3,355	3,848	3,456	3,500	3,286	3,127	3,355
	Unit Yield	(ton/ha)	2.6	2.6	2.7	2.8	2.8	3.1	3.3

Source: BPS Statistical Year Book of Indonesia

312-3 As shown in Table 3.1.6 and Figure 3.1.1, the improvement in food crop production over the past years was brought about by an expansion in the harvested area and the increment of unit yield. The trend in the unit yield over the past 35 years has shown an increase of two times in paddy and soybean, 1.6 ~ 1.7 times for cassava, sweet potato, and peanut, and 3 times for maize. Japan and other donor countries have made a substantial contribution towards this achievement through technical cooperation. In recent years, however, the increase in the unit yields of major food crops has been poor.

312-4 The farm gate price is still hovering at a low level. The price of farm inputs has risen steeply since removal of government subsidy in 1998. Therefore, the situation surrounding agriculture is be fairly severe. It is reported that non-farm income of small-scale farmers in Java accounts for around 75% out of total farmer's income[4]. Accordingly, it is understandable that incentive for farmers could have declined due to the low profitability of food crops.

312-5 Indonesia is the third largest paddy-producing country, following China and India. Indonesia is also the largest rice-importing country. As shown in the below table, paddy production in Indonesia in 2002 accounted for about 9% out of the world total, while the country's rice import was about 8% of total rice import.

4: Information from Ministry of Agriculture

Worldwide Paddy Production

(Unit: million ton)

Countries	1997-99 Average		2000		2001		2002		2003*		2004*	
Bangladesh	30.8		37.6		36.3		37.9		39.1		37.9	
Brazil	9.3		11.1		10.2		10.5		10.3		13.4	
China	201.2		189.8		179.3		176.3		162.3		186.7	
Egypt	5.3		6.0		5.2		5.6		6.2		6.0	
India	129.1		131.5		139.7		113.6		130.4		124.4	
Indonesia	49.8	8%	51.9	9%	50.5	8%	51.6	9%	52.1	9%	53.1	9%
Japan	11.7		11.9		11.3		11.1		9.7		11.4	
Korea	7.0		7.2		7.4		6.7		6.0		6.4	
Myanmar	18.0		21.3		21.9		22.8		24.6		23.0	
Pakistan	7.1		7.2		5.8		6.7		7.3		7.6	
Philippines	10.5		12.4		13.0		13.3		14.0		14.2	
Thailand	23.7		25.8		26.5		25.6		27.2		25.2	
United States	8.7		8.7		9.8		9.6		9.0		10.2	
Vietnam	29.4		32.5		32.1		34.4		34.5		35.5	
World Total	589.3	100 %	603.0	100 %	597.8	100 %	575.1	100 %	586.2	100 %	608.5	100 %

source：http://apps.fao.org/faostat/commodity FAOSTAT Agriculture Commodity Balance

*: data of 2003 and 2004 from Agricultural Production

Major Rice Import Countries and Import Transition

(Unit: million ton)

Countries	1997-99 Average		2000		2001		2002	
Bangladesh	1.2		0.3		0.2		0.9	
Brazil	1.0		0.6		0.7		0.5	
China	0.7		0.6		0.7		0.7	
Ivory Coast	0.5		0.5		0.7		0.8	
Indonesia	2.7	12%	1.4	6%	0.7	3%	2.0	8%
Iran, Isl. Rep.	0.6		0.9		0.6		0.9	
Japan	0.5		0.6		0.6		0.6	
North Korea	0.3		0.8		0.7		0.9	
Malaysia	0.7		0.6		0.6		0.5	
Nigeria	0.7		0.8		1.8		1.3	
Philippines	1.4		0.7		0.8		1.2	
Saudi Arabia	0.7		0.9		0.7		0.6	
Senegal	0.5		0.5		0.7		0.8	
South Africa	0.5		0.5		0.7		0.8	
World Total	23.3	(100)	22.1	(100)	22.9	(100)	26.3	(100)

Source: http://apps.fao.org/faostat/commodity FAOSTAT Agriculture Commodity Balance

312-6 According to the Food and Agriculture Organization of United Nations (FAO), the import of milled rice to Indonesia has decreased in recent years, i.e., 3 million ton in 1998, 4.7 million ton in 1999, 1.4 million ton in 2000, and 0.7 million ton in 2001. But In 2002, import of milled rice was 2.0 million tons on account of unseasonable weather such as flooding, heavy rain, etc. occurred in February and March 2002.

312-7 A forecast on supply and demand of rice for 2005 by province is shown in Table 3.1.7. According to the table, around 8 million ton of milled rice is surplus in the entire country in terms of food consumption only, while the provinces of

Bangka Belitung, Riau, East Nusa Tenggara, and Jakarta are in deficit. It is necessary to consider loss at the marketing stage and consumption other than food if supply and demand in whole Indonesia would be discussed.

312-8 In early 2002, the President of Indonesia announced an attempt to improve the self-sufficiency of paddy, for which Indonesia is the largest import country in the world, in order to find a way out of the situation. Further, annual expansion of paddy field by 100,000 ha is planned in provinces of Sumatra and Kalimantan. Meanwhile, the Government of Indonesia requested FAO to provide technical cooperation for improvement of food security, the program for which is called the National Program for Food Security (NPFS). FAO commenced a full-fledged study to formulate NPFS since February 2004.

312-9 Table 3.1.8 and Figure 3.1.2 show status of import and export trades of major food crops during the period from 1969 to 2002. Furthermore, the following table shows the balance of supply and demand of maize and soybean.

Supply and Demand of Maize and Soybean

(Unit：1,000 ton)

Crop			**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**
Maize	Local Production	(1000 ton)	9,307	8,771	10,169	9,204	9,677	9,347	9,527
	Import	(1000 ton)	639	1,123	327	635	1,286	1,082	1,202
	Dependency (%)		6	11	3	6	12	10	11
Soybean	Local Production	(1000 ton)	1,517	1,357	1,306	1,383	1,018	827	653
	Import	(1000 ton)	747	617	343	1,302	1,278	1,137	1,366
	Dependency (%)		33	31	21	48	56	58	68

Source：http://apps.fao.org/faostat/commodity FAOSTAT Agriculture Commodity Balance

312-10 As of 2002, around 11% and 68% of total consumption of maize and soybean is supplied from import, respectively. Maize is mainly utilized as animal feed, while soybean is utilized as a material for processing. The supply of maize and soybean is highly depending on import due to the high price and unstable production of local products. The MOA has been promoting selection of promising varieties, improvement of farming techniques such as multiplication and dissemination of quality seeds, improvement of appropriate technique of fertilizer application, enhancement of Integrated Pest Management (IPM), selection of promising rhizobium, etc.

(2) Horticultural Production

312-11 The annual average temperature and precipitation are estimated at 27 °C and 2,190 mm, respectively. Many kinds of vegetables are cultivated in hilly areas 700 to 1,000 meters above sea level. The main vegetables cultivated in hilly areas are cabbage, Chinese cabbage, onion, tomato, potato, carrot, etc., while chili, eggplant, cucumber, etc. are common in lowland areas.

312-12 In recent years, demand has been rising in the nation for meats, dairy products, and horticultural crops. This is because of population increase, growing concern about nutrition awareness, and increase of purchasing power due to improved income levels. However, as shown in Tables 3.1.8 and 3.1.9 as well as Figure 3.1.2, supply of vegetables has been slowing down recently, due to the economic crisis in 1997/98. The following table shows the current situation of major vegetable production in Indonesia.

Transition of Production of Major Vegetables

Vegetable			1996	1997	1998	1999	2000	2001	2002
Onion	Production	(1000 ton)	769	606	599	938	773	861	767
	Harvested area	(1000 ha)	96	89	76	104	84	82	80
Cabbage	Production	(1000 ton)	1,580	1,339	1,459	1,448	1,336	1,205	1,233
	Harvested area	(1000 ha)	70	65	69	65	67	59	60
Carrot	Production	(1000 ton)	270	227	333	287	327	301	282
	Harvested area	(1000 ha)	20	17	21	18	20	18	20
Potato	Production	(1000 ton)	1,110	813	998	924	977	831	894
	Harvested area	(1000 ha)	70	50	65	63	73	56	57
Chili	Production	(1000 ton)	1,044	802	849	1,008	728	580	635
	Harvested area	(1000 ha)	170	162	165	183	175	143	151
Cucumber	Production	(1000 ton)	614	490	507	432	423	432	406
	Harvested area	(1000 ha)	56	53	55	48	44	48	48
Egg plant	Production	(1000 ton)	365	280	312	300	271	244	273
	Harvested area	(1000 ha)	43	41	44	39	36	36	39
Tomato	Production	(1000 ton)	592	461	547	562	593	484	574
	Harvested area	(1000 ha)	50	44	47	46	45	43	49

Source: Agricultural Statistics 2001~2003, Ministry of Agriculture.

312-13 Table 3.1.10 shows current situation of major vegetable production by region and summarized as follows:

Production of Major Vegetables by Region in 2002

Unit: 1,000 tons

Region	Onion	Cabbage	Potato	Chili	Tomato
Sumatra	44	349	270	152	86
Java	563	766	567	396	385
Bali, NTT	110	55	7	37	33
Kalimantan	0	0	0	13	9
Sulawesi	49	60	49	36	56
Maluku, Irian Jaya	1	3	1	1	5
Whole Country	767	1,233	894	635	574

Source: Agricultural Statistics 2003, Ministry of Agriculture.

312-14 As can be observed from the above table, the major producing centers for vegetables are Java and Sumatra Islands. Vegetables produced in Java Island are mainly for domestic consumption, while those in Sumatra Island are both for domestic consumption and export to Singapore and Malaysia. As shown in the following table, North Sumatra province is one of the most active provinces for the export of vegetables in Sumatra Island. As shown in Figure 3.1.2, it is clear that export growth has been eroded recently.

Export of Major Vegetables in North Sumatra Province (2002)

(Unit: ton)

	North Sumatra Province		Whole of Indonesia		Ratio
	Production (1)	Export (2)	Production (3)	Export (4)	(2) / (4)
Potato	220,377	26,855	893,824	27,363	98%
Tomato	27,284	517	573,517	1,063	49%
Onion	25,144	3,265	766,572	6,816	48%
Leek	11,140	308	315,232	316	97%
Cauliflower & Headed Broccoli	n/a	2,773	n/a	10,627	26%
Cabbage	242,877	32,201	1,232,843	35,381	91%
Cucumber	20,290	13	406,141	84	15%

Source: Foreign Trade Statistics of Sumatera Utara 2002 and Agriculture Statistic 2003

(3) Fruit Production

312-15 In addition to vegetable production, fruits production is also contributing a great deal to crop diversification in Indonesia. The major production of fruits is for eating fresh, while utilization for processing applications such as canning, jam, and juice is also expanding. The production and cultivated area of fruit are still struggling for stable growth as shown below:

Fruit Production in Indonesia

	Fruit Crop		1996	1997	1998	1999	2000	2001	2002
Avocado	Production	(1000 ton)	143	130	131	126	146	142	238
	Cultivated area	(1000 ha)	19	11	12	11	13	11	19
Durian	Production	(1000 ton)	267	236	210	194	237	347	525
	Cultivated area	(1000 ha)	39	25	26	24	23	50	41
Orange	Production	(1000 ton)	731	696	491	450	644	691	968
	Cultivated area	(1000 ha)	38	25	23	25	37	35	48
Mango	Production	(1000 ton)	783	1,088	600	827	876	923	1,403
	Cultivated area	(1000 ha)	149	48	33	37	44	44	185
Pineapple	Production	(1000 ton)	501	386	327	317	393	495	556
	Cultivated area	(1000 ha)	30	6	5	7	7	8	9
Papaya	Production	(1000 ton)	382	361	490	450	429	501	605
	Cultivated area	(1000 ha)	10	10	10	10	9	10	10
Banana	Production	(1000 ton)	3,023	3,057	3,177	3,376	3,747	4,300	4,384
	Cultivated area	(1000 ha)	49	78	72	71	74	77	75
Ranbutan	Production	(1000 ton)	370	296	278	263	296	351	477
	Cultivated area	(1000 ha)	85	46	46	45	48	63	69

Source: Agricultural Statistics 2001~2003, Ministry of Agriculture

312-16 In general, Java and Sumatra Islands are the major production area of fruit as shown in Table 3.1.11. The main production centre for oranges and mangoes is South Sulawesi province, while South Sumatra province is the main centre for pineapples.

(4) Estate Crop Production

312-17 The cultivated area and production of major estate crops by production type (large and small estates) are shown in Table 3.1.12 and summarized as follows:

Proportion of Small Farmers in Total Production and Cultivated Area of Major Estate Crops

(Unit: %)

Estate Crops		**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002*)**	**2003**)**
Rubber	Production	78	81	79	80	75	84	84	84
	Cultivated Area	84	85	86	85	85	87	87	87
Coconut	Production	97	97	97	97	97	97	97	97
	Cultivated Area	97	97	97	97	97	98	98	98
Oil Palm	Production	24	25	26	26	30	36	37	40
	Cultivated Area	32	32	33	30	33	37	39	39
Coffee	Production	93	94	94	95	95	95	96	96
	Cultivated Area	95	94	94	94	95	95	96	96
Cocoa	Production	80	86	84	84	86	91	91	91
	Cultivated Area	72	74	74	78	80	82	84	84
Tea	Production	21	20	21	21	24	24	27	27
	Cultivated Area	42	42	42	42	43	45	44	44
Cashew Nut	Production	99	99	100	99	100	100	100	100
	Cultivated Area	98	98	98	98	98	100	100	100
Sugarcane	Production	0	0	0	0	0	0	0	0
	Cultivated Area	0	0	0	0	0	0	0	0

Note : *) Preliminary Figures Source **) Very Preliminary Figures
Source: Statistic Indonesia 2003, Central Bureau of Statistics

312-18 As shown in the above table, cultivation of oil palm, tea, and sugarcane depends on large estate, while small farmers for other estate crops.

312-19 Table 3.1.13 shows the cultivated area and production of major estate crops by province as of 2001. The major production centre for rubber and oil palm are Sumatra and Kalimantan Islands. Java Island is main centre for the production of sugarcane, tea, and tobacco. In the case of coffee, Robusta is broadly cultivated across whole country, especially Sumatra Island where the dominant production centre is located, while Sumatra and Sulawesi Islands contain for Arabica. Since 1992, the MOA has been promoting the cultivation of Arabica. Sumatra and Sulawesi Islands are main producing centers for cocoa.

312-20 The DG of Estate Crops guides districts (Kabupaten) on the formulation of the Industrial Tree Crops Community Region (*Kawasan Industri Masyarakat Perkebunan*: KIMBUN) for the development of estate crops. Each sub-district formulates an integrated development plan for each KIMBUN and implement activities according to the development plan. National development budget is allocated on a KIMBUN basis. This KIMBUN framework has been enforced since 1998, and 447 units of KIMBUN have been established in the country as a whole in 2004. These KIMBUNs are reviewed every year and new ones are formed, according to the situations of sub-districts.

(5) Subjects to be Considered in the Future

1) Improvement of Agricultural Income

312-21 In the case of small-scale farmers mentioned above, it is necessary to establish proper farming practice for cash crops (including horticultural crops), which are suitable to the region,, and to promote the right crop for the right land in consideration of production profitability, in order to improve agricultural income. It is imperative that the extension service and agricultural credit services are enhanced.

2) Dissemination of Appropriate Technologies

312-22 In recent years, the increase in the unit yields of major food crops has been poor, as shown in Figure 3.1.1. Productivity and profitability are subjects to be considered at farm level. Adaptable technology needs to be developed and disseminated, with consideration given to regional characteristics[5]. It is recommendable that appropriate skills, which were established, be disseminated to farmers properly.

312-23 Stable increase of crop production in Indonesia is an important subject in the current situation of increasing import of agricultural products. It is necessary to strengthen competitive power against imported agricultural commodities. Various factors such as agricultural policy, distribution of farm inputs, farmers' consciousness and incentives, natural conditions, etc. are connected to the complicated circumstances surrounding the current agricultural situation. Working on plans to increase domestic supply is expected, while clarifying the causes of import dependence and its countermeasures. In order to produce cheap and good quality agricultural commodities, it is expected that unstable circumstances such as curtailment of agricultural subsidy, unstable producer prices, etc. be studied.

3) Improvement of Quality of Agricultural Commodities

312-24 In order to improve productivity and profitability of agricultural production, much attention should be paid to the limitation of the application of agro-chemicals, implementation of IPM including bio-chemicals and pheromone traps, establishment of farming practices with consideration given to quality control, implementation of sustainable agriculture, environmental conservation, etc. as well as technique for production increase.

5: The whole country is categorized into seven Regions such as Sumatra, Java/Bali, Kalimantan, Sulawesi, Nusa Tenggara, Maluku, Irian Jaya. Proper agricultural activities are proposed and described based on the agro-climatic conditions. (Strategic Plan 1999 to 2004, Agency for Agricultural Research and Development)

As a result, it is necessary to improve quality at the production stage. In addition, it is imperative to establish a shipping standard and quality specifications in the aspect of marketing. Furthermore, in line with the global concern regarding food safety, it is necessary to supply food, ensuring the safety against contaminations of agricultural products and environments.

4) Necessity of Cross-Sectional Cooperation in Ministry of Agriculture

312-25 DGs for production concerned such as the DG of Food Crop Production, DG of Estate Crop Production, DG of Horticulture Production, and DG of Livestock Production implement their own action plans in cooperation with local government, based on their Strategic Plans for Mid-term Development (2001 to 2004). However, those activities are not closely linked with support services such as credit, marketing, research/experiment, and thereby effectiveness of project implementation is not achieved. It is recommended that each DG implement their own project effectively, systematically linking with the other DGs concerned.

3.1.3 Livestock

(1) Livestock Production

313-1 Livestock numbers in Indonesia are shown in the following table. It is clear that the number of livestock decreased due to the Asian economic crisis in 1997; however the number of animals has recently shown signs of increase. In particular, the number of layers and broilers was remarkably low during the economic crisis, due to low production of formula feed[6].

Livestock Number Trends

Unit: 1,000heads, 1,000birds

Livestock	1997	1998	1999	2000	2001	2002	2003*
Dairy cattle	334	322	332	354	347	358	368
Beef cattle	11,792	11,473	11,276	11,008	11,138	11,298	11,396
Buffalo	2,995	2,749	2,506	2,405	2,333	2,403	2,455
Sheep / Goats	21,630	20,452	19,957	19,993	19,865	20,190	21,410
Pigs	7,857	7,489	7,042	5,357	5,369	5,927	6,345
Native Chickens	260,258	252,516	252,653	259,257	268,039	275,292	287,344
Layers	70,583	38,825	45,531	69,366	70,254	78,040	85,048
Broilers	640,903	353,497	324,347	530,874	621,870	865,075	917,707
Ducks	30,291	25,921	27,552	29,035	32,068	46,001	48,120

Source: Statistical Book on Livestock 2003, MoA. *): Preliminary Figures in 2003.

313-2 Table 3.1.14 shows the geographical distribution of livestock in Indonesia, as summarized in the following table. As of 2002, the number of beef cattle in the East Java province, Central Java province, and South Sulawesi province are estimated at around 3.3 million heads, 1.3 million heads, and 0.75 million heads,

6: Information from DG of Livestock Production, Ministry of Agriculture respectively. In the case of dairy cattle, more than 95% of total dairy cattle are in the three provinces of Java Island, that is West, Central, and East Java provinces. Sheep/goats, and broilers are predominant on Java Island, whereas buffalo and pigs are reared mainly on Sumatra and the eastern islands, respectively.

Number of Livestock by Region（2002）

Unit: 1,000heads, 1,000birds

Livestock	Sumatra	Java	Kalimantan	Sulawesi	Others	Total
Dairy cattle	7	350	0	1	0	358
Beef cattle	2,630	5,066	406	1,582	1,613	11,298
Buffalo	1,239	580	66	198	319	2,403
Sheep / Goats	3,848	14,018	281	910	1,133	20,190
Pigs	1,414	172	752	1,004	2,585	5,927
Native Chickens	91,718	115,725	16,981	29,646	21,221	275,292
Layers	27,905	39,277	4,190	4,338	2,329	78,039
Broilers	167,393	608,844	46,193	21,490	21,155	865,075
Ducks	11,273	24,668	3,404	4,671	1,985	46,001

Source: Statistical Book on Livestock 2003, Ministry of Agriculture

313-3 As shown in Tables 3.1.14, around 3.1 million farmers raise around 12 million heads of cattle (including dairy and beef cattle). Therefore the average number of cattle raised by each farmer is estimated at three to four heads.

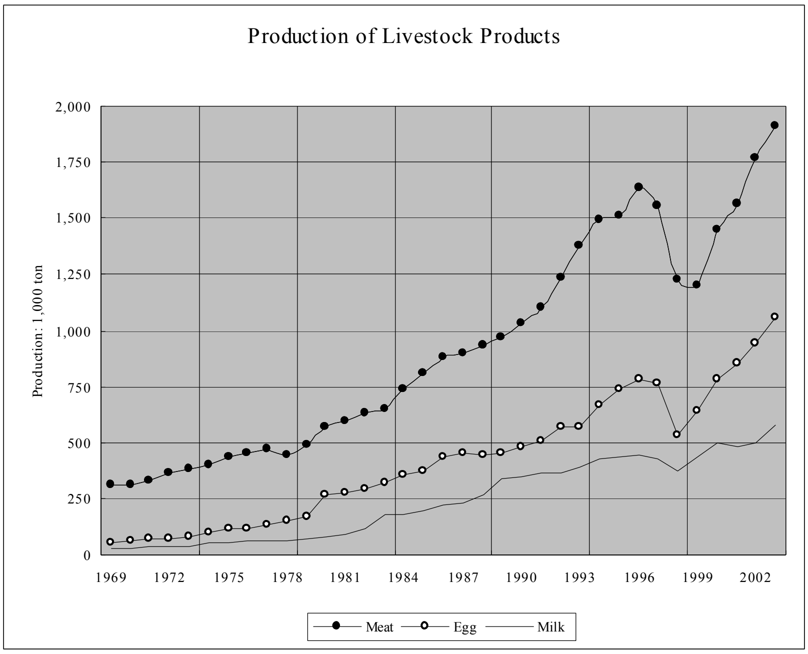
313-4 Raising cattle evolved from utilization as draft animal for farm cultivation and transportation. Recently, although production of beef meat has increased in relation to increment of consumption of beef meat, a major part of supply still relies on the export. The poor technical level together with the shortage of forage production and insufficient extension activities has resulted in a reduction of milk performance and breeding efficiency. Therefore, considering the restriction of land size, it is essential to increase productivity per head rather than to increase the heads of livestock per household. Both cattle and buffalo productivity is low and have little impact on the livestock industry. It is necessary to strengthen the system of breeding and propagation of cattle.

313-5 DG of Livestock Production aims at increment of local milk production in order to contribute to the increase of farmers' income, the expansion of domestic milk production, and the improvement of nutrition. The DG's strategy is to expand feeding area of dairy cattle to South Sulawesi province and Sumatra Region including Bangka Belitung (Babel) province and South Sumatra province.

(2) Demand and Supply of Livestock Products

313-6 Transition of animal production is shown in Table 3.1.15 and summarized below. The production of meat, milk, and eggs has been increasing year by year to meet consumption growth, with the exception of 1998/99, due to the effect of the Asian economic crisis.

313-7 Table 3.1.16 shows current status of import and export of livestock products. As



shown in the following table, the self-sufficiency of meet, eggs, and milk as of 2002 are 98%, 100%, and 26%, respectively.

Situation of Self- Sufficiency on Beef, Eggs and Dairy Products

Unit: 1,000 ton

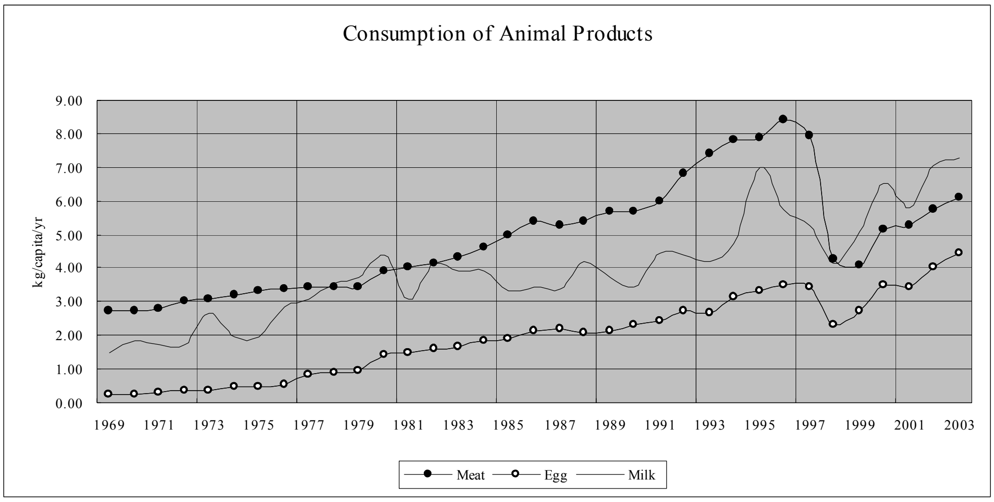
Item		1997	1998	1999	2000	2001	2002	2003***
Meat *	Domestic Production	1,555	1,229	1,196	1,445	1,560	1,770	1,909
	Import	33	14	23	72	44	45	45
	Self-sufficiency (%)	98	99	98	95	97	98	98
Eggs**	Domestic Production	765	530	640	783	794	946	1,060
	Import	0	0	0	0	0	0	0
	Self-sufficiency (%)	100	100	100	100	100	100	100
Milk	Domestic Production	424	375	436	496	480	493	578
	Import	693	588	822	1,480	1,476	1,383	1,383
	Self-sufficiency (%)	38	39	35	25	25	26	29

Note: * including beef, buffalo, goat, sheep, pork, horse, and poultry (native chickens, layer, broiler and duck)
** including native chickens, layer, and duck
*** Preliminary Figures in 2003
Source: Statistical Book on Livestock 2003, Ministry of Agriculture

313-8 As shown in Table 3.1.17, demand for animal protein such as meat, milk, and dairy products as well as vegetable protein has increased depending on increment of income, diversification of diet, population growth etc[7]. Consumption of livestock products during the economic crisis was drastically decreased, and then has been getting better gradually. Annual per-capita consumption of meat, eggs, and milk

7 : Food Balance Sheet (2001~2002) shows that annual per-capita consumption of animal and fish products is estimated at 5.75kg of meat, 4.04kg of eggs, 7.05kg of milk, 19.7kg of fish products. While daily caloric intake per capita of animal and fish products is estimated at 39cal of meat, 17cal of egg, 12cal of milk, 44cal of fish products.

(equivalent to protein) is shown in the following figure.



3) Local Feed Resources for Livestock

313-9 Livestock feed is divided into two types: one is formula feed, and the other is forage. The former has been used in feedlots, and large-scale commercial farms of layers, broilers, and pigs. Acquisition of feed, and protein materials in particular, is for the most part dependent on import, due to the limitations of domestic production. While the production of formula feed was 4.45 million tons in 1997, it decreased to 2.09 million tons in 1998, during the economic crisis.

313-10 As for forage, a basic constraint is the scarcity of roughage for big animals such as cattle, buffaloes etc. Dairy farming in high mountainous areas mostly uses wild grass growing in unutilized land and stubble in fields as much as possible. Draft cattle are normally grazed in paddy fields after the fields have been harvested.

313-11 The Government of Indonesia banned import of feed materials in order to prevent an invasion of foot-and-mouth disease in the past. As a result, supply of animal feed was stagnant for some time. It is imperative to promote local feed production and improve its sustainable and self-sufficient situation, in order to deal with certain situation properly.

(4) Animal Health System

313-12 In 1991, it was declared that foot-and-mouth disease was eradicated. At present, the major infectious diseases in Indonesia are brucellosis, cattle epizootic fever, blood poisoning and anthrax for cattle, hog cholera and hog erysipelas for pigs, and Newcastle disease and salmonellosis for chickens. Of these diseases, the most infectious and economically damaging are brucellosis, hog cholera and Newcastle disease.

(5) Subjects for Livestock Development in the Future

313-13 The livestock sector in Indonesia is divided into two types, the local resources based livestock industry and the imported feed and breeding stock based livestock industry (including the large scale commercial-based industry). In the large-scale industry, which relies on imported feed, the industry suffered during the economic crisis due to the high price of imported feed material. Import of feeder steers dropped sharply during the same period. In light of the above situation, it is necessary to promote small holder livestock development based on local stock raising and feed with the objectives of vitalization of rural economy and countermeasures for poverty reduction rather than the livestock industry based on imported feed and breeding materials. Subjects for promotion of local resources based livestock industry are given as follows:

1) Shortage of Feed Resources for Livestock

313-14 A stable supply of roughage is crucial for the small holder livestock industry to succeed. Meat quality, milk amount, etc. depend on the availability of feed during the dry season. In order to guarantee the supply of feed during the dry season, it is required to study the possibility of the processing of feed such as silage, which is an effective measure to utilize forage in rainy season. In addition, it is necessary to increase the productivity and self-sufficiency rate for domestic feed.

2) Inadequacy of Animal Health System

313-15 Animal health has closed linkage with productivity of livestock as well as public health concerning zoonosis, etc. It is important to improve functions of low-end health facilities. Those existing facilities retain a lot of constraints such as shortage of budget, poor facilities and human resources, etc. Further it is necessary to collect required information swiftly and correctly from every region of the country, in order to make administrative service on animal health more efficient and precise. Strengthening public veterinary health and the system for production and distribution of animal medicines and vaccines is also needed urgently, and particularly inspection of public health, monitoring of residual medicinal substances, and improvement of slaughterhouses.

3) Insufficient Livestock Production and Management Technique

313-16 Subjects important for increasing the production are the increase of forage production, utilization of by-products from agricultural products, and improvement of the technological level for feeding and management of cattle.

3.1.4 Agricultural Infrastructure

(1) Irrigation Area

314-1 Irrigation facilities are the most important agricultural infrastructure for stable food supply. In Indonesia, small-scale irrigation systems had been traditionally developed on a rural community basis through utilization small water sources, before the Dutch administration introduced the construction of modern irrigation systems in the 19th century.

314-2 Since independence in 1945, the government has been making great efforts toward irrigation development in order to attain foodstuff self-sufficiency. The construction and O&M of irrigation facilities has been carried out by the government with the assistance of international organizations and donors, and the irrigated area has been increased sharply since the 1960s. The irrigation area has been expanded from 3.60 million ha in 1982 to 5.03 million ha in 1999, a figure corresponding to 62% of the total paddy field area of 8.11 million ha. The following table shows the annual trend of irrigated area during the period from 1982 to 2002.

Irrigated Area

(Unit: 000 ha)

Island	1982	1990	Change 82 to 90	1999	2000	2001	2002	Chamge 00 to 02
Sumatra	613	900	(+287)	1,077	1,060	1,054	1,034	(+26)
Java	**2,500**	**2,536**	**(+36)**	**2,605**	**2,584**	**2,575**	**2,535**	**(-49)**
Kalimantan	31	207	(+176)	240	228	245	248	(+20)
Sulawesi	248	497	(+249)	607	661	645	618	(-43)
Others	208	308	(+100)	503	336	348	350	(+14)
Total in off-Java	**1,100**	**1,912**	**(+812)**	**2,427**	**2,485**	**2,293**	**2,250**	**(-35)**
Grand Total	**3,600**	**4,448**	**(+848)**	**5,032**	**4,869**	**4,867**	**4,785**	**(-84)**

Remarks: Data series during the period from 1982 and 1990 are different from data series in 1999 to 2002, therefore, increment is not obtained from 1990 to 2000 or 2002. Refer to Tables 3.1.18 and 3.1.19.

Source: Basic Data by Sector, Agriculture Sector, JICA Indonesia Office for data in 1982, 1990, 1999. Agriculture Survey, Land Area by Utilization 2000 to 2002, CSB.

314-3 Increases in the irrigated area are predominant in the outer island (off-Java), because the government has emphasized the agricultural development of the off-Java area to promote transmigration from Java and Bali Islands. The following table shows the total irrigated area and non-irrigated area for the respective islands of Indonesia in 2002:

Paddy Field in 2001

(Unit: ha)

Island	Irrigated		Non-Irrigated		Total	
Sumatra	1,034,000	21.7%	1,070,000	37.8%	2,104,000	27.2%
(Proportion)	29.0%	-	50.9%	-	100.0%	-
Java	**2,535,000**	53.0%	**782,000**	27.6%	**3,317,000**	42.8%
(Proportion)	76.4%	-	23.6%	-	100.0%	-
Kalimantan	248,000	5.2%	761,000	21.7%	108,000	13.0%
(Proportion)	24.6%	-	75.4%		100.0%	
Sulawesi	619,000	12.9%	282,000	10.6%	901,000	11.6%
(Proportion)	68.7%	-	31.2%		100.0%	
Others	350,000	7.3%	68,000	2.4%	419,000	5.4%
(Proportion)	83.5%	-	16.2%		100.0%	
Total in off-Java	**2,250,000**	47.0%	**2,182,000**	72.4%	**4,431,000**	57.2%
	50.8%	-	49.2%	-	100.0%	-
Grand Total	**4,785,000**	100.0%	**2,964,000**	100.0%	**7,749,000**	100.0%
	61.2%	-	38.2%	-	100.0%	-

Source: Agriculture Survey, Land Area by Utilization 2000 to 2002, CSB.

314-4 The above table shows that about 53% of the total irrigated area is located on Java Island, followed by Sumatra (22%), Sulawesi (13%), etc.

314-5 Java, an island where paddy fields have long been traditionally developed, shows a high proportion of irrigated paddy field, 76% of total paddy fields. In Sulawesi and Nusa Tenggara, paddy fields have not been traditionally developed. However, the reclamation of paddy fields has been carried out along with irrigation development. This has resulted in high proportion of irrigated paddy fields in this area. On the contrary, the proportion of irrigated paddy fields remains low in Kalimantan and Sumatra.

314-6 According to the Indonesian standards for irrigation system design, the above-mentioned irrigation area is classified into three categories, depending on their technical levels, namely technical system, semi-technical system, and simple system, as explained below:

Standard of Irrigation System

Items	Irrigation System		
	Technical System	**Semi-technical System**	**Simple System**
Main intake	Permanent structure	Permanent structure and semi-permanent structure	Temporary structure
Diversion structure with measuring devices	Good	Fair	Poor
Canal system	Completely independent canal system for irrigation and drainage	Not completely independent canal system for irrigation and drainage	Dual function of irrigation and drainage
Tertiary canal system	Well developed.	Developed to some extent.	Not developed yet.
Irrigation efficiency	50 ~ 60%	40 ~ 50%	Less than 40%
Size of irrigation area	No limitation	Up to 2,000 ha	Less than 500 ha

314-7 Irrigation areas, classified based on the above standards, are presented below (refer to Table 3.1.18):

Irrigated Area by Irrigation Standard (2000)

(Unit : ha)

Islands	Irrigation System			
	Technical	Semi-technical	Simple	Total
Sumatra	321,000 ha	258,000 ha	455,000 ha	1,034,000 ha
Java	1,516,000 ha	403,000 ha	615,000 ha	2,535,000 ha
Kalimantan	25,000 ha	33,000 ha	189,000 ha	247,000 ha
Sulawesi	262,000 ha	121,000 ha	235,000 ha	618,000 ha
Others	85,000 h	173,000 ha	92,000 ha	350,000 ha
Total	**2,209,000 ha**	**989,000 ha**	**1,587,000 ha**	**4,785,000 ha**

Source: Source: Agriculture Survey, Land Area by Utilization 2000 to 2002, CSB.

314-8 The above table shows that irrigated areas with technical systems are concentrated on Java Island; accounting for about 70% of the total. Further, the table shows that irrigated areas with the simple systems, which have been constructed through farmers' initiative, account for a rather high percentage, 32%. Around 68% of the area is irrigated by technical or semi-technical systems that have been constructed by the central or local governments. From this fact, it can be inferred that farmers are eager to increase agricultural production through irrigated farming.

314-9 For semi-technical and simple systems, which still account for 55% of total irrigated area, irrigation efficiency can be improved through development of small-scale irrigation water sources like reservoirs and wells, as well as by upgrading the systems.

314-10 In Java, about half million ha of the irrigated paddy fields were turned into urban areas or industrial areas during the high economic growth period of the 1990s, and this process still continues at the rate of thirty to fifty thousand ha per annum. In off-Java, the same process is reported in the surrounding areas of large cities, where the economic growth that has taken place has been remarkable. The Irrigation Management Policy Reform (IMPR) published in 1999 focused on this situation and included the development strategy of avoiding non-regulated conversion of irrigated paddy fields to other purposes.

314-11 In addition to the above, the government implemented large-scale swamp development projects for resettlement of immigrants through drainage improvement. Its development progress reached 1.2 million ha in 1991. These swamp projects are usually located in remote areas, where, in many cases, the rural facilities for immigrants were poorly established and crop productivity was quite low due to problem soils such as peat and potential sulfate soils. Because of this, the life of the immigrants was not stable, and in some cases cultivation was abandoned.

(2) Present Condition of Irrigation Facilities

314-12 Irrigation projects are generally regarded as public works, and the main system including diversion work and main canals as well as secondary canals are constructed by the central government. The main irrigation systems, once constructed, are handed over to the regional governments of provinces, districts or cities, which carry out their O&M. However, O&M work is not satisfactory due to budget shortages, and it is reported that one third of government irrigation schemes have been rehabilitated twice in the past 25 years. The government has a tendency to prefer to periodic rehabilitation.

314-13 Regional governments are unable to ensure the proper functioning and O&M of irrigation systems due to deficiencies in institutional systems, capable staff and budget. This prevents equitable distribution of irrigation water at tertiary block level, and farmers are not able to avail of irrigation farming. Therefore, farmers are not willing to pay irrigation service fees (ISF)[8], and water users associations (WUAs) have no financial resources to enable proper management. This situation leads to insufficient O&M, and brings about a vicious cycle which gives rise to the mal-functioning of irrigation facilities and increased cost of rehabilitation. Other reasons that water users associations are not active are the lack of training system, low organizational functionality, and non-transparency of financial operation.

314-14 A feed-back study financed by Japan Bank for International Cooperation (JBIC) was conducted for the "Special Studies for Establishment of Framework on Policy Reform in Water Resource Sector," in order to drive forward policy reform under Water Resources Adjustment Loan (WATSAL) of the World Bank. According to the results of the study, the existing irrigation systems in Indonesia have been deteriorated due to the following reasons:

- Intake facilities: Design discharge cannot be taken in due to a lowering of the river water level at the intake site caused by riverbed erosion. Intake structures along rivers are choked by floating materials in the rivers.

- Canals: The flow area of canals becomes smaller than designed due to inflow of sediment loads from rivers. Some sections of canal become choked with sediment produced by erosion of the inside slopes of canals. Seepage losses are very high and canal water does not reach the tail of

[8] In the recent legal documents "Irrigation Service Fee (ISF)" has been changed into "Irrigation Management Fee: Iuran Pengelolaan Irrigasi", however, ISF is utilized in this report to avoid confusion.

the canal. Canal structures are kept unrepaired, and accordingly proper canal operation can not be practiced.

- On-farm facilities: Irrigation water is not used efficiently due to inadequate development of on-farm facilities. Some low-lying areas suffer from poor drainage due to deterioration of drainage canals.
- Water management: There are observed shortages of canal water in downstream reaches of canals and excessive intake in the upstream reaches due to poor water management. Precise water management cannot be conducted, because electric-driven gates can not be operated due to a shortage of electric supply, and have to be operated manually.
- There is irrigated land with absentee landowners, mainly in the outer islands.

(3) JICA Study in Comprehensive Recovery Program of Irrigation Agriculture

314-15 In order to increase the efficiency of water use through recovering functionality of irrigation facilities as well as to give the farmers an incentive to maintain the irrigation facilities by themselves through introducing uer-friendly facilities, JICA conducted the "Study on Comprehensive Recovery Program of Irrigation Agriculture" during the period from February 2003 to February 2004. In this study, the comprehensive rehabilitation program was formulated as a sequence of processes from initiation of the program to operation of facilities for the irrigation systems with an area of more than 1,000 ha located in the three provinces of North Sumatra, Central Java and South Sulawesi. The Guideline for Rehabilitation of Irrigation Facilities was also prepared for personnel of the central and local governments and consultants, and its contents are shown below:

Initial Phase	a)	Preparation of the Master List of irrigation schemes with more than 1,000 ha
	b)	1st screening based on WUA establishment, institutional capacity of the local government, water resources potential, etc.
	c)	Field Investigation for Pre-F/S
	d)	2nd screening through evaluation of water resources availability
	e)	Formulation of development plan at the Pre-F/S level, and 3rd screening based on the result of Pre-F/S
	f)	Prioritization of the scheme, formation of priority list, and preparation of an action plan

Midterm Phase	a)	F/S and preparation of Implementation Program
	b)	Determination of the schemes to be rehabilitated and budgeting
Final Phase	a)	Detailed design
	b)	Civil construction
	c)	Empowerment program for WUA
	d)	Empowerment program for the agriculture extension services
	e)	Operation and monitoring of the irrigation system

Source: The Study on Comprehensive Recovery Program of Irrigation Agriculture, February 2004, JICA and Ministry of Settlement and Regional Infrastructure.

(4) Farm Road

314-16 In Indonesia, farm roads are defined as roads that connect a village road with farmland. In the past, the construction and rehabilitation of farm roads has generally been included as one of the project components for irrigation or agricultural development and there has been no specific project dealing only with farm roads. For planning and design of farm roads, the following figures are generally used:

Specification of Farm Road

Item		General Farm Road	Estate Farm Road
Density of farm road		50 m/ha	50 m/ha
Road width	- Main farm road	5 ~ 6 m	7 ~ 8 m
	- Secondary farm road	3 ~ 4 m	5 ~ 6 m
	- Tertiary farm road	1 ~ 2 m	2 ~ 3 m

314-17 Maintenance and repair of farm roads are generally carried out from village budgets.

314-18 (4) Subjects to be Considered in the Future

- Proper repair and maintenance work for the existing irrigation facilities are major points to be considered.
- Irrigation facilities have been losing their function due to the decay. Furthermore, some canals were deteriorated even a few years after construction because of inadequate O&M. Accordingly, it is required to review maintenance systems, and also formulate and implement a practical rehabilitation plan.
- For the canal system, which is not receiving proper water management, improvement is necessary under the beneficiaries' initiative, taking a step-wise approach, together with the efficient use of saved water, keeping pace with the establishment of O&M mechanism.

- It is necessary to promote small-scale irrigation in rural areas with low rainfall and low productivity, in areas where irrigation facilities are inadequate and their productivity low.
- Irrigated paddy fields have been converted to other purposes due to urbanization and industrial development. Proper countermeasures are required to curtail alteration of irrigated paddy fields.

3.1.5 Water Management and Operation and Maintenance of Irrigation Facilities

(1) Background of Operation and Maintenance (O&M) Activities and Water Users' Associations

315-1 Traditionally, the construction and O&M of irrigation facilities were generally carried out by farmers themselves in Indonesia, though on a small scale. After 1969, however, the government has been promoting the development of government-led irrigation schemes line with the 5-Year Development Plans in order to attain self-sufficiency for rice at a national level. After 1982, the government, recognizing the importance of water management at the on-farm level, promoted the reorganization of WUAs by replacing the traditional WUAs with those based on village boundaries, together with the promotion of tertiary development. In parallel with these activities, the government also promoted the BIMAS Program. Owing to these promotional measures, rice production showed a drastic increase and self-sufficiency in rice had been attained in 1984.

315-2 However, since the promotion had been a government initiative without the involvement of farmers, many problems quickly arose, particularly regarding water management and O&M of the irrigation systems as well as budgetary burden for O&M. In order to promote efficient water management and reduce the budgetary burden, the government planed to hand over the function of O&M to WUAs and WUA Federations. The system of support from the central government to WUAs was to be transferred to provinces and districts in accordance with Law No. 22/1999 "Regional Governance." After the decentralization was completed, the MOHA and KIMPRASWIL would take responsibility for coordination among the ministries at the central level. On the other hand, all supporting systems to WUAs would be integrated in the management of district governments and managed in a unified manner.

315-3 The registration of WUA to BAPPEDA is being administered by the planning and programming department of the district government. The procedure of registration is set in the Regulation of MOHA (No.12/1992). In principle, WUAs are organized for; (i) each tertiary irrigation block and (ii) each small-scale pump irrigation scheme. Basically, one WUA is organized for one village. The chairman of the WUA is in charge of coordination among the members and with the governmental offices. And the technician (Ulu-Ulu) is in charge of technical matters such as water management and O&M of irrigation facilities. Each Quaternary Block Head is elected from all block members once every three years and can hold the post for 3 terms at the maximum. These people work on a full-time basis and their salary is paid from the WUA budget.

315-4 In addition to the above situation on management and O&M of irrigation, i) Irrigation Management Policy Reform, ii) WATSAL, and iii) JICA Study for improvement of Irrigation Management and Empowerment of Water Users' Associations for Enhancement of Turnover Program, 4) New Water Resources Law No.7 /2004 are described below.

1) Irrigation Management Policy Reform

315-5 Economic development and population increase in the 1990s drastically expanded the demand for water resources. This shifted the emphasis of water resources from being a natural resource issue to one of economic resources, and has stimulated the government to undertake a drastic review of water resources throughout the country. In the irrigation field, which is the largest user, consuming more than 80% of the total available water resources, it has become an urgent task to increase the efficiency of water use, to recover the function of irrigation facilities and to realize sound management of facilities in order to attain sustainable irrigation operation. Under such circumstances, the government announced the new development strategy by issuing Presidential Decree No.3/1999, "Irrigation Management Policy Reformation (IMPR)" addressing the concept of "one irrigation system – one management", as described below:

- Water, previously regarded as a "social good" is now regarded as an "economic entity,"
- Water management, previously undertaken on the basis of "supply driven" should be excised as "demand driven,"
- Water resources development, previously undertaken on the basis of "project orientation" must be implemented as "integrated development" with other resources,
- Water planning and sustainability must be based on the "supply concept" rather than the "user concept,"
- The central government must develop policy in terms of "enabling strategies" rather than through a strategy based on "provision."

315-6 In order to implement the strategy of new IMPR, the following approaches are involved:

- Review of duties and responsibilities of organizations concerning irrigation water management (Restructure of irrigation water management institutions for better farmer participation, with better regulation and farmer empowerment programs),
- Strengthening of WUAs (Empowerment of WUA by adopting social and local culture aspects and better environment consideration enabling farmers to establish legal associations as registered companies),
- Hand over of irrigation management to WUAs (Handing over irrigation water management to farmers gradually, selectively, democratically; however, the government will continue to technical support and financial assistance),
- Collection of irrigation service fees (ISF) and O&M cost (Funding of financial sources for irrigation infrastructure that can be collected, managed, and utilized by the association itself),
- Provision of sustainable irrigation systems (Sustainable maintenance of water resources and prevention of land conversion from irrigated areas to other uses so that irrigation systems can be sustained).

315-7 In order to strengthen the existing water management and O&M system, the government has prepared the guidelines for establishing new WUAs based on the concept that the territories of WUAs should coincide with administrative boundaries. At the same, the government has been promoting the program for turnover of responsibility of water management and O&M of irrigation facilities to WUAs. In spite of such effort by the government, the results of the program are far lower than expectations.

315-8 In order to realize the above-mentioned development strategy, the WUAs need to be financially self-sufficient. From this viewpoint, the government allowed the WUAs to conduct economic activities such as group procurement of farm inputs, and group sale of agricultural products without limiting the WUAs' activities only to water management. However, very few WUAs have been advanced to the level of the government's expectations, because they are still financially immature and do not have enough capacity to perform the strategy.

2) Water Sector Adjustment Loan (WATSAL)

315-9 The government had initiated the establishment of new water resources policies and legal reform, and requested the World Bank to provide financial assistance for their implementation. In response to this request, the World Bank loaned the government US$300 million as WATSAL and work had been carried out. The scope of work consisted of following six subjects concerning the strengthening of WUAs, turnover of irrigation management to WUAs and reform of laws and regulations:

i) Strengthening of WUAs.
ii) Hand over of irrigation management systems to WUAs.
iii) Sustainability of irrigation system.
iv) Reorganization of institutions for irrigation management.
v) O&M and rehabilitation of irrigation facilities.
vi) Mechanism of ISF and its collection.

315-10 In order to support the WATSAL program, JBIC provided financial assistance for the implementation of the “Special Studies for Establishment of Framework on Policy Reform in Water Resources Sector”. This package consists of the following five components:

i) Study on irrigation management policy reform
ii) Study on water resources management in regions and river basins,
iii) Study on water quality management,
iv) Development of management information system for rural development,
v) Review and feedback study on JBIC-financed irrigation projects

3) JICA Study

315-11 In order to realize sustainable irrigation agriculture in Indonesia, JICA has conducted the “Study for Improvement of Irrigation Management and Empowerment of Water Users’ Association for Enhancement of Turnover Program”. This study aims at the establishment and strengthening of WUAs to enable them to take over irrigation management systems from government agencies. This study was started in April 2000 and was completed by November 2001.

315-12 In this study, the issues identified in the field survey are categorized into i) role of the government for support, laws and regulations, ii) management and institutional aspects of WUA, iii) O&M of irrigation facilities and water management, and iv) agriculture, economics and finance, through problem analysis. Based on the analysis of the issues, it has been concluded that the old WUAs, which were established under the government’s top-down approach can be re-organized to become sustainable WUAs where farmers participate in irrigation management together with the government (joint management), through formation of the federation of individual WUAs.

315-13 Based on the above conclusion, the countermeasures were assumed and verified through field surveys in 25 selected irrigation schemes and workshops at central and regional levels. As a result, the countermeasures were verified as applicable and acceptable to farmers and government staff. It is pointed out that the current policies for agricultural development are not justified or effective for stimulating farmers' incentives and realizing profitable irrigated agriculture that enables the implementation of O&M and rehabilitation. The countermeasures were re-organized into the action plan, consisting of 12 actions as presented below:

Action Plan proposed by the JICA Study

Category		Action
Preparatory Work on Irrigation and WUA(s) Management	1.	Public awareness of government policy amongst government officials
	2.	Inventory of Irrigation Systems and WUAs
Action Plan on Irrigation Management and Turnover	3.	Public awareness and capacity building at WUA level
	4.	Training of WUA(s) Leaders
	5.	Start-up Financial Assistance
	6.	Formulation / reformulation of WUA(s) and WUAF(s)
	7.	*Kabupaten* Irrigation Improvement Fund (KIIF)
	8.	Improved O&M and Joint Management
	9.	Collection of ISF and Government Support
	10.	Rehabilitation of Irrigation System
	11.	Monitoring and Evaluation
Action Plan for Irrigated Agriculture	12.	Enhancement plan on agriculture (enhancement of individuals and promotion of group activities)

4) New Water Resources Law No. 7/2004

315-14 New Water Resources Law No. 7/2004 was enacted in March 2004 by replacing the previous Law No. 11/1974, and indicates the framework for development and management of water resources. The new Law stipulates that the integrated river basin approach is to be employed for development and management of water resources, and the role and responsibility of the government and beneficiaries in development and management. Further, the law changes the basic concept for irrigation O&M and rehabilitation from handing over to participatory approach, taking into consideration the situation of WUA and farmers capacity.

315-15 Under the new Water Resources Law, development, O&M and rehabilitation of the primary and secondary systems of irrigation scheme are the responsibilities of the central and regional government, and the government facilitates WUA to participate through their empowerment. Development and O&M, rehabilitation of the tertiary system are the responsibility of WUAs, while the government may provide financial assistance to WUAs if they are not capable. Regarding development, O&M and rehabilitation of the primary and secondary system, the central government is responsible for the irrigation schemes more than 3,000 ha and crossing the boundary of province. The provincial government is responsible for the schemes between 1,000 ha and 3,000 ha, and crossing the boundary of kabupaten. The kabupaten or municipality government is responsible for the schemes less than 1,000 ha within its territory.

315-16 The concept of irrigation O&M and rehabilitation is changed from "transfer to WUA" to "participation by WUA", and then the government has put moratorium on enforcement of the Government Regulation No. 77/2001 on Irrigation. In order to implement the participation of WUA, the new Government Regulation is under preparation. The main points changing from the previous Government Regulations are summarized in Table 3.19, and the schematic flow of policy change in irrigation management is illustrated in Figure 3.1.3. The existing organization structure is shown in Figure 3.1.4 and the organization structure expected under the New Water Resources Law is shown in Figure 3.1.5.

315-17 Under the new Water Resource Law, development and management of water resources are carried out at the river basin basis. For management of water resources, the Water Resource Management Service (Dinas PSDA) and its branch offices (Balai PSDA) in each river basin have been established under the provincial government. In the seven (7) strategic river basins[9], the River Basin Management Corporations has been established or under preparation. Water allocation and distribution for all the related sectors will be decided by the Provincial Water Resources Coordination Committee (PTPA) and Water Resources Management Executive Committee (PPTPA). The River Basin Management Corporation is a member of the Committee. Revision of such institution for water resource management in the river basin is under discussion. .

(2) Law and Regulation regarding Water Management, O&M and WUAs

315-18 In Indonesia, many laws and regulations concerning water management, O&M and the establishment and strengthening of WUAs have been promulgated, among which the following ones are the most important:

[9] : The seven strategic river basins are: 1. Kali Brantas River Basin, 2. Bengawan Solo River Basin, 3. Citarum River Basin, 4. Jratunseluna River Basin, 5. Serayu Bogowono River Basin, 6. Jeneberang River Basin, and 7. Way Seputih-Way Sekanpung River Basin. PJT I (Prem Jasa Tirta I) was established for the Kali Brantas River Basin, the extension of PJT I has been established for the Bengawan Solo River Basin, and PJT II has been established for the Citarum River Basin. Other four river basin has been studied for establishment of the River Basin Management Corporation.

List of Law and Government Regulation

Laws and Regulations	Concerning (Main Contents)
Law No. 11/1974 on Water Resource	Development for water resources and irrigation
Government Regulation No.22/1982	Rules for water management
Government Regulation No.23/1982	Promotion of irrigation development
Presidential Decree No.2/1984	Establishment and strengthening of WUAs
Irrigation O&M Policy (IOMP) and Irrigation Service Fee (ISF) in 1987	Establishment of institutional and fiscal frame-work to enable effective and sustainable O&M of public irrigation network
Presidential Decree No.42PRT/'89	Transfer of small irrigation system to WUAs
Regulation of Minister of Home Affairs No.6/1992	Collection of ISF
Regulation of Minister of Home Affairs No.12/1992	Establishment and strengthening of WUAs
Regulation of Minister of Home Affairs No.19/1992	Collection of ISF
Government Regulation No.6/1998	Rule for repayment of construction cost by WUAs
Presidential Decree No.3/1999	Irrigation management policy reform (IMPR)
Government Regulation No.77/2001	Irrigation (amendment of Government Regulation No.23/1982 concerning irrigation)
Decree of KIMPRASWIL No. 529/KPT/2001	Guideline on transfer of authority to conduct irrigation management to WUA
Regulation of Minister of Home Affairs No.50/2001	Guideline on empowerment of WUA
Law No. 7/2004 on Water Resources	Development & management of water resources and irrigation (replacement of Law No. 11/1974)

Remark: Historical change of legal documents is to be referred to the Schematic Flow of Police Change in Water Management in Figure 3.1.3.

(3) Governmental Organization for Empowerment of WUAs

315-19 The supervisory ministries for WUAs are the KIMPRASWIL (Ministry of Public Works at this moment), the MOA and the MOHA. Among these, KIMPRASWIL (Ministry of Public Works at this moment) contains, under the DG of Water Resources, the Directorate of Water Resources Management that is in charge of planning and drafting the policies for water management, water conservation and WUAs; and the Directorate of Technical Guidance that promotes local governments to train WUAs in the technical aspect of irrigated agriculture. The MOA contains the Directorate of Water Management under the DG of Agricultural Infrastructure Development, which is in charge of guidance for water management from the plant physiological viewpoint. On the other hand, the MOHA, through the Regional Public Government and the Directorate of Regional Development, guides the institutional and structural aspects of WUAs in collaboration with regional governments.

315-20 The supporting system of the central government to WUAs was being transferred to provinces and districts following Law No. 22/1999, "Regional Governance." After the decentralization started in 2001, the MOHA and KIMPRASWIL (Ministry of Public Works at this moment) take responsibility for coordination among the ministries at the central level. On the other hand, all the supporting systems to WUAs is to be integrated in the management of district governments and managed in a unified manner.

315-21 Based on the above situation, a new Government Regulation, No. 77/2001, was issued to revise No. 23/1982 concerning irrigation. At the same time, other related ministerial decrees were issued from MOHA and KIMPRASWIL (Ministry of Public Works at this moment) for effective enforce, and legal framework of local governments is presented to support the formation of WUAs. In this framework, the bottom-up participatory approach is employed for empowerment of farmers, in order to lead to the formulation of WUAs. At the moment, due to the policy change in irrigation O&M from handing over to participation, new government regulation is under preparation including empowerment of WUA.

315-22 Irrigation Committee will be organized in the provincial and kabupaten level. Members of the Committee are the representatives of related office and WUAs. Water allocation will be decided based on the cropping pattern and calendar agreed in the Committee, and will be approved by the Governor or Bupati.

(4) Classification of Irrigation Systems and Budget for O&M

315-23 In Indonesia, the classification of irrigation systems and their budgetary arrangements are made according to the manner of construction, as follows:

Construction Manner and Budgetary Arrangement

Irrigation System	Manner of Construction	Budgetary Arrangement
Government Irrigation System	The irrigation system was constructed by the government. WUAs were organized and ISF is collected by WUA. The O&M of the main and secondary systems are conducted under the responsibility of the government.	State budget (APBN) + Provincial budget (APBD) for primary and secondary system, OM budget for tertiary is arranged by WUA
Small-Scale Irrigation System	The irrigation system was constructed by the government. However, since the system covers less than 500 ha, the system was transferred to a WUA after completion of its construction.	O&M budget is arranged by WUAs.
Village Irrigation System	Irrigation system was constructed by village.	O&M budget is arranged by village, but APBN is allotted when necessary.

315-24 The cost for training of WUA is included in the budget of offices in charge in the provincial and kabupaten government. The training is conducted according to the Ministerial Decrees and the Government Regulation to be prepared as guidelines for empowerment of WUA.

315-25 According to the JICA Study for Improvement of Irrigation Management and Empowerment of Water Users' Association for Enhancement of Turnover Program, government budget to support for O&M came to Rp.30 trillion in FY1997/98, which is the equivalent to US$64.3 million in total or US$11 per ha. According to the JICA Study on Capacity Development for Jeneberang River Bain Management, the cost for O&M of the primary and secondary systems is estimated at about US$38/ha per annum.

315-26 New Government Regulation is under preparation along with the new Water Resource Law, and the new mechanism for financing O&M may be introduced. Fund for O&M from the various sources, i.e. government budget, ISF and other sources will be deposited in the Irrigation Management Fund to be established at province and kabupaten level, and this fund will be expended according to the recommendation by the Irrigation Committee.

(5) Evaluation of the Existing WUAs

315-27 Since 1984, the government has been examining the possibility of collection of ISF and O&M cost from WUAs in order to lessen the government's financial burden; it developed the Irrigation Operation and Maintenance Policy (IOMP) in 1987.

315-28 This policy places the main emphasis on: (i) enhancement of O&M efficiency; (ii) starting the turnover of responsibility for O&M with schemes smaller than 500 ha; and (iii) farmers' responsibility for the payment of all O&M cost required even for the government's irrigation systems. Due to the following reasons, however, the result of implementation has not been to the government's satisfaction:

- The above-mentioned policy had a "top-down" approach, neglecting farmers' wishes as well as accumulated knowledge and the locally prevailing traditional approach.
- Awareness of farmers is not sufficient to ensure payment of irrigation service fees.
- Collection system of irrigation service fees has not been established.
- A WUA managerial organization has not been established.

315-29 In addition to the above performance problems, progress with the establishment of WUAs has been lower than the government's expectations. According to the interim report prepared in November 2000 for the JICA study on "Improvement of Irrigation Management and Empowerment of Water Users' Associations for Enhancement of Turnover Program", about 104,000 WUAs have been established. This is equivalent to 37% of the total goal, and of these, only 19% are active, with 1,017 WUAs legally registered.

315-30 According to the JICA Study on Comprehensive Recovery Program of Irrigation

Agriculture, about 76% of WUAs have been established against the target of 4,533 WUAs to be established in the three provinces of North Sumatra, Central Java and South Sulawesi. However, active WUAs are 9% of established WUAs. Under such circumstances, the empowerment of WUAs is an urgent requirement to promote participation of WUAs in irrigation O&M.

(6) Present Condition of ISF (Irrigation Service Fee) Collection

315-31 The government started to collect ISF based on the IOMP, 1987 mentioned above. After implementation of this policy, the government enforced the Regulations of MOHA No.6/1992 and No.12/1992 in 1992 in order to maintain and operate the irrigation canal systems above the tertiary canals by spending the ISF collected from farmers and to enhance the accountability of farmers towards the O&M of irrigation facilities as a whole. The responsibility for collection of ISF was placed with the local revenue service (DISPENDA). The amount to be collected was assessed based on a very complicated formula and difficulties in ISF collection were expected from the start, which brought about difficulty in managing WUAs. Other factors for the failure in ISF collection are:

- The enforcement of the "top-down" procedure for ISF collection was fraught with difficulties.
- Most of the collected ISF (U.S.$4~8/ha) was spent on office administration and very little was actually spent on O&M.
- Due to inadequate recovery of canal functions and insufficient O&M, equitable water distribution has not been made from the head to the tail of the canal system.

315-32 In addition to the failure of ISF collection mentioned above, an insufficient system of guidance from the government to WUAs and low rate of establishment of WUAs, the stagnation of WUA activities has been observed all over the country.

315-33 According to JICA's interim report mentioned above, the ISF collection rate for the 6 years from 1994/1995 to 1999/2000 in the West Java province averaged 20% and the rates for the respective years are as shown below for reference:

Collection Rate of IFS in West Java Province

Year	Collection Rate
1994/1995	41%
1995/1996	17%
1996/1997	26%
1997/1998	20%
1998/1999	8%

Year	Collection Rate
1999/2000	7%
Average	20%

315-34 (7) Future Subject to be Considered

- It is necessary to train local government staff and other stakeholders, in order to improve their technical ability for O&M and WUA management.
- It is necessary to establish a mechanism for the rehabilitation of laws and regulations on irrigation development, maintenance and rehabilitation work, capacity building and fund arrangement in order to achieve sustainable management of facilities.
- It is necessary to formulate a proper maintenance system for irrigation systems and promote participation of water user organizations in irrigation O&M.
- It is necessary for the regional government to encourage farmers' to pay water charges and also enhance collection system of water charges as well as farmers' organizations, in addition to the establishment of a mechanism for O&M system.

3.1.6 Marketing

316-1 Summarized below is current situation on the marketing of agricultural products by commodity and constraint:

(1) Analysis by Commodity

1) Main Crops

Rice

316-2 Rice (Paddy) is distributed from farmers to consumers mainly through the private sector, while others (as the public sector) are through Perum BULOG (former National Logistic Agency; BULOG). Former BULOG was changed into Perum BULOG (Public Enterprise) since 2003, which now plays two types of operation i.e. public operation and commercial business operation. Public operation covers following tasks assigned by Government in order to strengthen food security such as 1) to control the Government Purchase Price for Paddy, 2) price stabilization, 3) rice distribution for poor people, and 4) to maintain national reserve stocks. Meanwhile, commercial operation could cover 1) rice industry 2) logistic/storage, 3) survey and insect prevention, 4) provision of plastic sacks 5) transportation, 6) white sugar trading, 7) retail business, and 8) integrated food marketing center. The rice price and quality requirement is determined by joint decree of both former BULOG and Agency for Food Security in MOA (04/SKB/BBKP/II/2002, 26th February 2002, Kep-58/UP/02/2002). In case[10] that policy will be changed, Agency for Food Security or other related ministry will issue new regulation and Perum BULOG will follow.

316-3 Although available data are limited, it is reported that more than 90% of rice distribution is through the private sector, which is associated with the fact that Village Cooperative Units (KUDs) are losing its organizational ability. Rice distribution system is mentioned in Figure 3.1.6.

316-4 Market channels through the private sector in Java and major consumption area in outer islands generally are: Farmers, after sun-drying, sell their produce (paddy) to collectors or directly to rice mills. Milled rice is sold to consumers through traders, wholesalers and retailers. In the wholesale market, the wholesalers usually function as commission agents between traders as sellers and retailers as buyers, conducting face-to-face negotiations. No unified quality standards are applied in these private marketing channels. Major wholesalers and millers are mostly overseas Chinese. On the other hand, in other area major food commodities are consumed within the area, and wholesale markets have not been developed. The majority of farmers are small-scale. In both the cases, they rely on collectors for support with funds, production inputs, etc., weakening their position in terms of selling their produce. Farmers' access to market information is also very limited.

316-5 Rice distribution channels through the government sector are:

Perum BULOG as the Public Enterprises still has the tasks as the public operation. Its regional organizations (DOLOG/SUB-DOLOG) procure rice from KUDs or the private sector. Farmers in most cases sell their produce (paddy) to the private sector mainly for two reasons: (1) Weakening KUDs have difficulty purchasing paddy due to shortages of funds and (2) Farmers are in many cases unable to meet the quality requirements for procurement of paddy.

316-6 Main procurement channels of the government are from private rice millers to DOLOG/SUB-DOLOG. The quality requirements set by Perum BULOG

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[10] Information from Agency for Food Security

are not utilized in the market because of no grading standards. Post-harvest losses of rice are reported to be 20% in general. However, the grounds and definitions for this are not necessarily clear.

Vegetables and Fruit

316-7 Generally, vegetables and fruit are distributed from farmers to central/regional markets through local collectors. No quality standards are applied in the market. Preparation of standards is still under way by the ministries concerned before official publication by National Standardization Agency. In recent years, direct marketing channels between collectors and large-scale consumers (hotels, supermarkets, etc.) have been established on contract basis, where the products are selected before shipment to meet the requirement of customers.

316-8 Wholesale and retail functions are generally intermingled in each market. The markets are mostly public and managed by local government or management cooperative organized by participants of the market. Most of the markets are superannuated, congested and not hygienic enough, in addition to the daily occurrence of dead stock, leading to sizable losses on the products. No license system for wholesalers, no obligation for report of dealing data, face-to-face negotiations and incomplete quality standards are constraints on transparent trade and fair price formation.

316-9 Small-scale farmers in many cases rely on local collectors for support with funds, production inputs, etc., weakening their position in selling their produce. Marketing before harvest is also often observed. Farmers' access to market information is very limited.

316-10 Market price data for vegetables and fruit are collected by government officials and publicized through the media every day. However, it is reportedly not fully utilized due to lack of volume, immediateness, practicality and accuracy. Coordination between central and local governments also does not function well on this matter.

316-11 Transportation of vegetables and fruit from farms to the markets is usually by open trucks. The shortage of markets in production areas makes the required distance to markets longer, resulting in weight loss and quality deterioration. Improper packaging, incomplete road conditions and shortage of cold storage also lead to the occurrence of losses. Post-harvest losses of vegetables and fruit are roughly estimated at 30%.

316-12 The quality of vegetables and fruit are generally inferior, making it difficult for the processors to procure the produce as raw materials that meet their requirements in terms of quality and quantity.

Estate Crop

316-13 Nearly 80% of estate crops are exported. The majority of farmers are small-scale (80% to be 0.5 – 5.0 ha including other crops). Three stages of traders are usually present between farmers and exporters. Traders at each stage select produce in order to meet the requirements of the destination countries. Usually, about 35% is rejected and sold to the domestic market at low prices. Like other commodities, many farmers rely on local traders for support with funds, production inputs, etc., weakening their position in selling their produce. The younger generations' dislike for farming and the low education level of most farmers are also pointed out as constraints.

2) Livestock

Broilers

316-14 Large-scale poultry traders including foreign capital ventures dominate 70-80% of the broiler market, exclusively supplying the mixed feed. They have slaughterhouses and cold storage facilities, and sell butchered broilers directly to large-scale consumers, after procurement of live broilers on large-lot contracts with big farmers.

316-15 The majority of farmers, who are very small in scale, often rely on small-scale, local poultry traders for support with funds, feed, chicks and medicines. They sell raised broilers back to the traders. Live broilers are usually butchered by retailers for consumption. Small traders also distribute live broilers to large-scale poultry traders on demand. Raw materials of the mixed feed are mostly imported. Large-scale poultry traders, being the importing agents, make the mixed feed market oligopoly. The majority of farmers are generally handicapped in the cost due to small lot of transactions.

Beef

316-16 Cattle traders control the beef market. Some 90% of farmers, who are small-scale, sell beef cattle to the traders. Live cattle are then turned to fresh carcasses by slaughterers and sold to consumers at retail markets. Large-scale farmers (Feed-lotters) sell fresh beef directly to large-scale consumers, after butchery in their own slaughterhouses. Like other commodities, the majority of farmers are weak positions, relying on local cattle traders for support.

<u>Milk</u>

316-17 Milk distribution seems to be smoother, with less marketing risk for dairy farmers than other livestock products. Milk is sold from dairy farmers through dairy cooperatives and the national dairy federation (GKSI) to dairy companies.

316-18 Distribution of livestock products apart from milk also has constraints such as improper transportation/storage/packaging, unhygienic and inefficient markets, and incomplete quality standards, as is the case with other agricultural products.

316-19 The major problems of livestock industry in Indonesia are (1) dependence on imported feed in the poultry industry and imported feeder steers in the feed-lot industry, and (2) Low quality/low productivity/non-uniformity of products in local resources based stock raising. In the process of possible solutions thereto, improvement of the marketing system of livestock products needs to be attained.

(2) Analysis by Constraint

1) Wholesale Market

316-20 Wholesale markets of agricultural products are generally old, congested, and unhygienic, in addition to the daily occurrence of dead stock, all of which increases post-harvest losses. Anyone can be a trader in the market, because of the existence of a registration system and not licensing for participation, which makes transactions in the market complicated and confused due to an excess of wholesalers. Reporting of dealing data (quantity, prices, etc.) by wholesalers to the authority is not obligatory, so the market information at the authority is incomplete. The market facilities are not partitioned by commodity, leading to non-smooth physical flow. Transaction patterns differ by market. Wholesale and retail functions are in many cases intermingled in the market. Quality standards and market regulations are not well established. All these problems are constraints to the realization of transparent trade and fair price formation.

316-21 In Indonesia, there is no comprehensive law governing the wholesale markets of agricultural products. The wholesale markets are established, owned and managed by respective local governments. Actual operation of the market is generally carried out by a public corporation, represented by the local government officials. No basic change is reported on this situation before and after the decentralization.

316-22 The major players in the wholesale markets are usually collectors or traders as shippers, retailers as buyers and wholesalers. The wholesalers receive a part of selling price or profit at predetermined rate from the shippers on every transaction. Participation of producers (farmers) to the market is rare.

316-23 Pasar Induk Kramat Jati, a representative wholesale market for vegetables and fruit, was established in Jakarta in 1973. This market is owned by the local government of DKI Jakarta, who leases 3,879 booths (as of 2004) to nearly 2,000 wholesalers and others by contract for 20 years (Renewal every two years). Transference of the title to lease is possible, but unlikely. Some 90 % of the vegetables and fruit to be supplied to DKI Jakarta are reportedly distributed thorough this market. In transactions at the market, wholesalers have initiatives and advantages to both shippers and retailers in general, leading to the formation of "vertical integration" in the market channels.

316-24 Transactions and price formation systems in the markets are not transparent. The mechanism and background of price formation should be thoroughly reviewed for raising the transparency, which will lead to the realization of fair competitiveness in the markets and eventually the strengthening of farmers' bargaining power. A comprehensive study needs to be done to establish the most appropriate system of the markets in Indonesia. The produce collection system, based on collective marketing by farmers' group or equivalent, is an important prerequisite for efficient operation of the markets.

316-25 Generally, in wholesale markets located in large cities, scale of main players is bigger due to more consumption and also the marketing channels have more stages/ diversity due to longer distances from production areas, than otherwise. Two to three stages of collectors or traders are usually present between farmers and the market. Traders near the markets are mostly full-timers. Under such situation, improvement of the wholesale markets may not lead to the benefit of farmers immediately. On the other hand, local markets near production areas are small in scale and just one stage of collectors is present between farmers and the market in general. As described before, many local collectors are not full-timers but often farmers too, and establish a sort of special relationship with farmers, depending on each other. If they can be regarded as farmers' leaders, it is possible that their benefit may extend to farmers indirectly and further facilitate the vitalization of rural economy. From this point of view, it may be important to strengthen collectors or traders who play in between farmers and the markets. Further examination needs to be carried out to clarify the situation thereof.

316-26 Wholesale markets have the important functions such as price formation, collection and subdivision of produce and transmission of market information. Roles of the markets differ from one country to another depending on development stage of the markets and the background behind it. In developed countries, the distribution of produce outside the markets is increasing under diversification of the market channels and modernization of the physical distribution system. Wholesale markets, under such situation, are pressed to review their roles to put emphasis more on the downstream area (needs of large-scale retailers, etc.) and the principle of competitiveness. However, the wholesale markets still play an important role, particularly for vegetables and fruit.

316-27 On the other hand, in Indonesia, the relevant marketing systems are not well established as yet in terms of farmers' organizations, shipment & collection, physical distribution and quality standards, in addition to incomplete market institutions, unlike developed countries. The proportion of " Through wholesale markets " to the total distribution is quite high, while there is another trend of the participation of foreign capital in the distribution and retail sectors in Indonesia, as described elsewhere. Taking such situation into account, the most appropriate system of the market in Indonesia needs to be formulated, which should lead to the vitalization of the market and the raising of farmers' income. However, in developing countries, it is generally pointed out that institutional framework is not well established and unwritten rules dominate the major part of the market. Improvement of the market, therefore, may take time with a trial-and-error method.

2) Market Information System

316-28 Market price information is regularly collected by officials of central (MOA and MOIT, currently divided into MOI and MOT) and regional governments. Basis of the current system was introduced in 1978. In the specific areas of the country, staffs of every DINAS (Service office for agriculture and industry & trade, Kabupaten /Kotamadya/Kota level) collect market prices by selected commodity of vegetables/ fruit, rice and palawija by sampling. The relevant directorates of MOA and MOIT (currently divided into MOI and MOT) utilize the collected prices for statistical purpose or others, in addition to the public release through the media. Mainly, DINAS agriculture is responsible for collection of farm gate prices, and DINAS industry & trade covers wholesale and retail prices.

316-29 However, the current market information system is reported to involve various constraints such as:

- Coordination between central and regional governments seems to be inefficient in connection with decentralization. Further, data collection is getting difficult due to shortage of communication tools, transportation means and staffs.
- Utilization of the system by farmers, collectors and traders is limited, because of drawbacks in the quantity, quality, promptness and practicality of the information.
- Farmers and local collectors need more precise and detail information in local areas. They are also interested in information for planting & cropping by area, prices & stock of the production inputs, trend of demand & supply by area and so on, as well as the prices of produce.
- Information transmission system is incomplete, particularly for the farmers who have no communication means.

316-30 An appropriate market information system enables a future prospect of the market trends and prices, and eventually leads to the strengthening of farmers' bargaining power. The requirements of farmers, collectors and traders on market information need to be clarified, and an effective market information system should be established based on improvement of the current system.

3) Shipment, Collection and Distribution

316-31 The majority of farmers, whose farms are very small in scale, ship their produce individually. They do not have enough money, production inputs or labors, lack market information, and even have no means of transportation in many cases. With insufficient public support, they tend to rely on traders for funds and inputs, resulting in weak bargaining power. They usually have very limited information or none at all about how their products are sold in the market. There is no marketing activity such as sales promotion or market development.

316-32 Collective marketing by farmers' organizations may be an option for improvement. This will enable farmers to strive to attain: 1) higher and more uniform quality of agricultural products, 2) cost reduction, 3) easier access to market information, and ultimately increase their income by strengthening their bargaining power. As described before, collective marketing by farmers' group can be the basis for a produce collection system, which is an important prerequisite for efficient operation of wholesale markets. However, it should be sufficiently sustainable and indigenous in Indonesia.

316-33 On the other hand, as described before, different sides exist in the market. Many collectors and wholesalers are not full-timers but multi-players, often farmers. They are also burdened with various marketing risks. The roles and functions of the main players in the market need to be reviewed carefully.

4) Quality

316-34 The above situation makes it difficult to give farmers incentives to improve the quality of agricultural products. The lower quality of the products also works to bring down their selling prices. Lack of quality standards in many commodities leads to unclear quality judgment and price determination. Creation of incentives to improve quality needs to be studied from various aspects to prepare for a prospective expansion and diversification of demand in the future.

316-35 Basic demand of the market of agricultural products to the production side is the quality and stable supply of the produce. Traders are often forced to carry out the extra process (cleaning) in wholesale markets, as the produce is delivered to the market soon after harvest without pre-cleaning. Usually, grading of the produce is not conducted due to lack of standards. Low quality of the produce, in addition to improper transportation and packaging methods, increases post-harvest losses in terms of quality and quantity. The management of the said wholesale market (Jakarta) suggests an idea for strengthening sub-terminal markets (equipped with sorting system) to be located in between large city and production areas. Processors have difficulty in stable procurement of fresh agricultural products as raw materials because they are often far below the requirement in terms of quality.

316-36 However, the other side is also to be pointed out that what the market should indicate to the production side is not done clearly. The requirements of the buyer (quality, quantity, prices, delivery and payment terms, etc.) are naturally clear for the export, while it is generally obscure in the domestic market of agricultural products. There is no practical standard in terms of quality and packaging to identify the value of produce. Price formation mechanism is invisible. Needs of the market are not transmitted to the production side in distinct and objective way. Improvement of all these constraints is in urgent need.

5) Post-Harvest Losses

316-37 Sizable losses, both qualitative and quantitative, occur at the marketing stage, caused by improper transportation/handling, poor packaging and a shortage of storage, in addition to dead stock at wholesale markets. Traders naturally try to make up for such loss-risk by transactions with farmers, resulting in disadvantages to farmers. Post-harvest losses on agricultural products have been one of the main issues throughout the world for a long time. However, the situation of the losses is not necessarily clear as yet. Full study needs to be conducted to clarify the situation and reduce post-harvest losses.

6) Transportation and Storage

316-38 Improper methods of transportation, together with incomplete road conditions, confines marketing to limited areas and quantity. It also leads to the occurrence of losses on the products. Transportation over long distances from the production area to the market increases weight loss and quality deterioration.

316-39 Shortage of storage facilities also makes the marketing area narrower and the quantity less, as well as causing large seasonal fluctuation in prices, since the produce is shipped soon after harvest.

316-40 Irregular taxation levied on every movement of agricultural products among provinces is another constraint on smooth distribution.

316-41 Transportation and storage systems are the basic infrastructure for marketing. It is essential to improve management aspects such as stock management and quality control, in addition to the facilities themselves.

7) Deregulation in the Market and Distribution

316-42 Revision of the investment related laws in 1994 enabled foreign capital to participate in the distribution and retail sectors in Indonesia. Direct transaction in large scale has been expanding by supermarkets in large cities, and such changes have been increasingly taken place in marketing aspect. Improvement of the outdated market and distribution is therefore imperative in order to respond to the prospective expansion and diversification of the demand in the future.

(3) JICA Study on Improvement of Institutions and Information System for Agriculture Product Market

316-43 Taking the above situation into account, JICA carried out the Study for Improvement of Institutions and Information System for Agricultural Product Market during the period from February to October 2004. According to the Study, the present condition is described below:

316-44 Market institutions of agricultural commodities are generally built as the traditional market in big cities, towns, districts, and villages. Wholesale markets so far built and under operation are located only in West Java: Cibitung Wholesale Market in Bekasi, Tanah Tinggi Wholesale Market in Tangerang, Caringin and Gede Bage Wholesale Markets in Bandung, and Kramat Jati Wholesale Market in East Java.

316-45 Condition of small scale traditional markets still have many inferiorities, both in facilities and services, and market stakeholders in these markets are small-medium traders. These small-medium traders have been forming informal groups based on the character of localism, and this situation does not support to encourage transparent and fair transaction due to tribe consanguinity. Conditions of big markets like wholesale market, though more organized, still have a lot of problems to be tackled. The main stakeholders in the wholesale markets consist of grocery merchants, shippers and buyers, and their genesis and background shows wide variation. This situation becomes one of the obstacles in forming a formal institution of traders. Wholesale market management bodies have a limited authority, and this disables to conduct proper control and monitoring.

316-46 Traditional and wholesale markets are not orderly arranged well, and wholesale market facilities are not satisfactorily maintained. Many traders are only taking advantages from markets. Consequently such situations make markets left dirty, unhygienic and not comfortable. Furthermore, trading is individually performed between shippers and market traders, causing no transparency of transaction and price formation, and no effective coordination among traders involved in market business.

316-47 Market data and information collection system was introduced in 1987, and Ministry of Agriculture and Ministry of Industry have regularly been collecting market information and distributing them to public. After decentralization, the central and local government has not been well coordinated, and data collection becomes difficult due to short of communication equipment, transportation and staff. The system is then incompletely working in view of kinds, quality and promptness as well as impractical, therefore, market data and information are not fully utilized by farmers, collectors and traders.

316-48 (4) Subjects to be Considered in the Future

- The wholesale markets of agricultural products are generally old, congested and unhygienic, in addition to the daily occurrence of dead stock, all of which increases post-harvest losses. Improvement needs to be carried out to attain hygienic and efficient management of the market.
- Many constraints exist to the realization of transparent trade and fair price formation. The effective institutional framework governing wholesale markets and relevant distribution areas needs to be thoroughly reviewed and improved. The produce collection system should also be improved to facilitate a reduction of distribution cost and efficient operation of the market.
- Farmers have difficulty in accessing market information. A wide-ranging and effective market information network should be established between producers (farmers) and consumers (users) of agricultural products, to facilitate revitalization of the market.
- Many small-scale farmers rely on traders for support with funds and inputs, weakening their bargaining power. Collective marketing by farmers' group may be an option for improvement.
- The current situation in the market makes it difficult to give farmers incentives to improve the quality of agricultural products. In addition, sizable losses occur at every marketing stage. Full study needs to be conducted to clarify the situation for reduction of losses.

3.1.7 Agricultural Extension

(1) Agricultural Extension System

317-1 Before decentralization, it was required that an Agricultural Extension Information center (BIPP: Balai Informasi dan Penyuluhan Pertanian) should be located in each district (Kabupaten) and controls Extension Offices (BPPs) should be positioned in each sub-district (Kecamatan) under jurisdiction of BIPP. BIPPs were responsible for approving of action plans on extension activity to be prepared by sub-district offices, evaluating and monitoring extension activities to be conducted by BPPs, and also training extension officers and farmers. Due to decentralization, each district has an individual plan for restructuring the organization and function of its BIPPs depending on their extension service policy and strategy. Implementation system and capacity of local governments differ and therefore there are differences in importance and expectation for extension activities by each district. As a result, 24 BIPPs have maintained their ordinary functions and some have been changed their organization into agency, office, unit (UPTD), sub-division, section or functional position group, and the others have been dissolved as shown in Table 3.1.20. With regard to the extension service, the responsibility of the MOA is to formulate guidelines, conduct monitor activity, to provide technical assistance for local governments, etc., while local governments are the executing agencies of the extension service. Salary and other miscellaneous costs for extension officers are granted in a lump sum from the budget of the Ministry to local governments now.

317-2 As of July 2004, BPPs have been established in 3,892 sub-districts out of the 4,303 sub-districts throughout the country (refer to Table 3.1.21). As of July 2004, 33,659 extension officers are deployed in the whole country, and each extension officer covers around 809 farm households.

317-3 As shown in Table 3.1.22, farmers in around 40% of total districts in the whole country depend on non-farm income for majority of their household income. It is against this background that proportion of landless farmer and small farmers is quite high. Under this situation, there are some disparities in terms of the degree of importance and expectation of extension activities among districts. Some local governments launched their implementation of extension activities based on their own policy and strategy rather than the guidelines of the central government. As shown in Table 3.1.21, functions of BIPP in 18 districts out of 375 districts of the whole country have been discontinued as of July 2004, even though as of June 2002, 5 districts out of 343 districts did not have agricultural extension institutions like BIPP.

317-4 As for development budget for assistance of extension service, basically the budget at district level is allocated from APBD (district budget). In the case of implementation of national project or program by district government as Co-administration task, that budget is allocated to district governments from national government.

(2) Training of Extension Officers

317-5 Extension officers are required to possess at least the qualification of diploma in

Agricultural Extension Academy (APP) as in the case of teacher or other kinds of technical officials based on the Presidential Decree of 1999. All incumbent extension officers as well as new officers are required to obtain that qualification. Accordingly, retraining (in-service training, correspondence courses, etc.) has been commenced for about 30,000 extension officers whose highest level of qualification is high-school graduation. Consequently, it is expected that they will become D3 holders within five years.

317-6 The Management of Agricultural Human Resources Development Centre was established in Bogor, in order to train persons concerned with agricultural education and extension at central and provincial levels. Agribusiness Training Centres (Balai <Besar> Diklat Agribisinis; BDA or BBDA) are located in seven provinces in order to carry out training of relevant provincial and district staff members. While Agriculture Training Centres are located in 23 provinces in order to conduct training activities for relevant staff members of agricultural extension activities of Districts and Sub-districts. Regarding Agriculture Training Centres, the MOA covers the management cost, while local governments handle staff salaries. Training programme contents in Agriculture Training Centres may differ depending on the policy of the provincial government. The Ministry is worried about a negative influence on quality and quantity on the training programs and curriculums of those centres. Education and training are not carried out smoothly and systematically due to problems such as confusion caused by decentralization, insufficient staffing and lack of local-level budgets.

(3) Experiment and Research

317-7 The Agency for Agricultural Research Development (AARD) is a coordinating agency of research and experiment activities in the agricultural sector. 13 National Institutes are established under the umbrella of AARD as follows:

1) Research Institute for Rice in Sukamandi, West Java Province
2) Research Institute for Legume and Tuber Crop in Malang, East Java
3) Research Institute for Food Crop Biotechnology in Bogor, West Java
4) Research Institute for Maize and Cereal in Malang East Java
5) Research Institute for Swampy Food Crop in Banjar Baru, South Kalimantan
6) Research Institute for Vegetables in Lembang,West Java
7) Research Institute for Fruit in Solok West Sumatra
8) Research Institute for Ornament Plants in Cianjur, West Java
9) Research Institute for Spices and Medical Crops in Bogor, West Java
10) Research Institute for Tobacco and Fiber Crops in Malang in West Java

11) Research Institute for Coconut and Palmae
12) Research Institute for Animal Production in Ciawi, West Java
13) Research Institute for Veterinary Science

317-8 Assessment Institutes for Agricultural Technology (AIATs or BPTP; Balai Pengkajian Teknologi Pertanian) are located in all provinces except new province such as North Maluku, Gorontalo, West Papua, and Riau island province. AIATs have functions such as (i) development of adequate agricultural technologies and research work for applied technology, (ii) technical support for extension activities, and (iii) promotion of agribusiness. Furthermore, AIAT is preparing a detailed map, superimposing socio-economic information with the zoning of agro-ecological zones. AIATs are managed by the Centre for Socio-Economic Research and Development of AARD.

317-9 The transfer of AIATs to relevant provinces still needs process and time due to un-readiness of the provincial government in supporting the program of AIAT as well as the shortages of provincial budget. However, the MOA has committed to transfer AIATs to the provinces, if the financial circumstances of provinces are put in order.

317-10 (4) Subjects to be Considered in the Future

- Regarding the extension service, it is important to accurately evaluate the current situation and thus systematically re-formulate the framework for overall extension activities, with consideration given to decentralization. It is necessary to strive to close the gaps in understanding concerning extension services between the central and local governments.
- It is expected that effective and efficient education and training be implemented in this situation of limited staffing and shortage of budget.
- MOA had possessed 10 Agricultural High Schools. After decentralization, some of them were transferred to local governments except in Banjar Baru, Palembang and Kupang. However, the running costs of agricultural high schools are a financial strain for some local governments. Therefore, the quality of curriculum as well as quantity and quality of teachers, etc. might be negatively affected. Further, some APPs might be bumped up to Agricultural Colleges, but their operation and maintenance budget is still insufficient. There is controversy as to whether or not those academies to be turned into Colleges are able to maintain the educational standard required.
- In addition to the subjects mentioned above, it is necessary to examine:
  a. extension, education, training, and research systems to promote

agricultural and rural industries, including processing and marketing activities; and

b. a mechanism to reflect needs from the village in education, extension, and research and development systems to develop sustainable agriculture in line with decentralization and other changes in rural environments.

3.1.8 Agricultural Credit

(1) Current Situation of Agricultural Credit

318-1 The Food Security Credit (Kredit Ketahanan Pangan:KKP) programme entered its third year which was introduced as a replacement of KUT (Kredit Usaha Tani/ Farm Credit Scheme). The KKP investment ratio (loan-fund ratio) as of 1 July 2004 was about 99%, indicating smooth operation compared with the 28% of the second year, 4% of the first year of its operation, as shown in Table 3.1.23. In principle, KKP is operated for production activities in the agriculture and fisheries sector, as the name of KKP suggests, as shown in Table 3.1.24. In other words, borrowers are not allowed to apply this credit scheme for improvement of living standards. Annual interest rate is 12% for food crops and 16% for livestock, estate and fisheries.

318-2 The government originally had a plan to decrease the interest subsidy gradually (6% for 2002, 3% for 2003, and finally 0% for 2004). However, this reduction of the interest subsidy rate was postponed and therefore government subsidy is continued for the time being.

318-3 A typical micro finance institution is the Income Generating Project for Marginal Farmers and Landless, otherwise known as P4K (Peningkatan Pendapatan Petani-Nelayan Kecil). Implementation of P4K for marginal farmers and fishermen is supported by the International Fund for Agricultural Development (IFAD) and the ADB. The Bank Rakyat Indonesia (BRI: State Owned People's Bank) has responsibility for financing as a channeling bank. P4K beneficiaries are small farmers, landless farmers, small-scale fishermen, small home industry operators, and other community members in villages. They must be below the poverty line, which is defined as having an annual income equivalent to 320 kg of white rice per capita[11]. They are obliged to organize a group with around 10 persons and carry out activities by means of group approach. The upper ceiling of credit is around 300,000 for the first year, an amount not sufficient for certain agribusiness. It is noted that around 80% of the credit disbursed was repaid,

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11 : Equivalent to around Rp.600,000 per year

although the borrowers are small farmers. Phase I of P4K was started in 1979, and the P4K is now in the Phase-III and scheduled to continue until March 2005. During the implementation of Phase-III (1998 to 2005), it is expected that P4K benefit about 74,000 small farmers' groups or covering around 800,000 poor families in rural area of 12 provinces. Annual interest rate of P4K is 22.15%, which is almost same as that of commercial banks. Current status on operation of P4K as of June 2004 is shown in Table 3.1.25.

318-4 (2) Subjects to be Considered in the Future

- It is expected that financial schemes for initial investment and operation funds for agribusiness to be carried out by individuals and/or corporations be urgently established, and also operation and management way be formulated. Actual performance of P4K must be referred for the formulation of the new scheme.
- It is necessary to consider the current situation of existing financial institutions as well as their constraints and countermeasures, in order to propose proper and practical credit schemes. Financial institutions to meet various needs in regional circumstances should be established, and further education and training for operation of those schemes could be indispensable, in order to aim at economic development in rural areas and improvement of the income of farmers and fishermen.

3.1.9 Farmers' Organizations

(1) Current Situation of Farmers' Organization

319-1 From 1970 to 1997, the GOI had integrated cooperatives and farmers' organizations in rural areas into unified cooperatives known as KUDs. In principle, KUDs can conduct business and service activities under the guidance of the Government. Some KUDs have fulfilled their function sufficiently and can be considered on a par with the international standard. However, the majority of KUDs have limited capacity and track record in the management of finance and facilities. In other words, the service level of major KUDs does not meet the needs of all peoples in a region.

319-2 Under the Habibi Administration that replaced the Soeharto Administration in July 1998, the KUD's monopolized preference was abolished by Presidential Decree No. 18 and new cooperatives with a minimum of 20 promoters could be established. In response to Presidential Decree No.18, the GOI has encouraged the establishment of new cooperatives, which are called Koptan (Koperasi Tani), derived from standard Kelompok Tani. It is estimated that approximately 3,000 Koptan cooperatives have been established in the past 3 years, while 12,000 groups are still awaiting approval. Compared with progress over the 30 years from 1970, in which around 9,200 KUDs were established, the current rate of establishment of Koptans is rapid. The majority of the new cooperatives are still in the early period of establishment, and some of them have no facilities and staff members on the payroll as their management base. Since the rainy season of 1998, Farm Credit (KUT: Keredit Usaha Tani) was extensively promoted under the implementation of a three-year plan for increasing food production. Under the situation mentioned above, it seems that the reorganization of Koptan and establishment of NGOs were promoted, aiming at delivering credit (KUT) to farmers.

319-3 As mentioned above, it is possible for rural people to freely organize cooperatives. As a result, many small organizations, which are newly established, are unable to effectively take their advantages as cooperatives. For instance, many Koptan have few members, a small scale of economic activities and services, and limited management capacity, and not registered in a formal manner. Therefore, merits of scale in joint selling and joint buying, systems that commit to a quality standard, stock, etc. are not ensured. It is necessary to improve this situation.

319-4 In major KUDs, 5 to 10% of harvested products obtained from members are shipped jointly, and facilities for processing, storing, and selling are available and operated by a KUD itself. Accordingly, it seems that revitalization of cooperatives including KUDs through the bottom-up approach is one of the countermeasures for the promotion of community-based economic activities.

319-5 (2) Subjects to be Considered in the Future

- Clarification of actual features of farmers' associations such as KUDs, Koptans, Kelompok Tanis, etc.
- Clarification of the policy framework and necessary countermeasures required for the strengthening of farmers' organizations, including cooperatives. The following points should be described clearly in this policy framework:
  a. Methods for promotion of autonomous incorporation and business cooperation in consideration of economies of scale in business activities,
  b. Guidelines for appropriate financial management in the cooperatives (including introduction of exterior auditing system), and
  c. Guidelines for establishment of adequate organization and

management of cooperatives as well as their business activities such as joint marketing, joint purchasing, etc.

- Promoting understanding of the necessity and merits of cooperatives as well as their fundamental rules, to promote the formation of democratic cooperatives, and the necessity for strengthening farmers' organizations and enlightening members for participation (it is necessary to raise the participation rate of cooperative members from the present 11% to more than 50% at the least).
- Striving to conduct agribusiness activities (purchasing farm input and marketing aspect including marketing information, processing and distribution of product) of cooperatives through consideration of regional characteristics and the positive participation of cooperative members.

3.1.10 Agribusiness

(1) Current situation

3110-1 Agribusiness includes all non-farm activities from input-oriented (upstream) businesses such as seed production, fertilizer and the agricultural machinery industry to output (or downstream) activities such as marketing. In terms of the relevant ministries, the MOA, MMAF, State Ministry of Cooperatives and Small & Medium Enterprises, MOIT (currently divided into MOI and MOT), etc. are closely linked. The MOA and is responsible for the production of agricultural raw materials; the MMAF, fishery raw materials; the State Ministry of Cooperatives and Small & Medium Enterprises, farmers' and fishermen' organization; and Ministry of Industry and Trade, the processing of agricultural and fishery raw materials.

3110-2 The use of revolving funds has been institutionalized by the MOIT (currently divided into MOI and MOT) as LPT-Indak (Lembaga Pembinaam Terpadu Industri dan Dagang Kecil), to promote small and medium enterprises (SMEs) through the industry and trade office of local government. The credit limit is from Rp.5 million to Rp.50 million, with a repayment period and annual interest rate of 2 years and 5%, respectively. The MOIT (currently divided into MOI and MOT) has been promoting SMEs in rural areas with the support of the German Technical Cooperation (GTZ). The major task of GTZ is to encourage small enterprises, such as those assembling and selling of hand tractors, etc. As described in Sub-section 3.1.6, the Ministry officially publishes information on retail prices by radio, which is collected by around 1,500 members of relevant staff in local governments (major provinces and districts).

(2) Subjects to be Considered in the Future

1) Intensification of Agribusiness Intelligence

3110-3 It is necessary to intensify product-based information such as market prospects both at home and abroad, price trends, quality requirement, etc. Furthermore, agribusiness information referral services to linkage among prospective clients, processors, buyers, etc. must be established.

2) Improvement of Regulatory and Business Environment

3110-4 It can be understood that preferential measures for inviting a processing company to set up a plant and develop a local industry do not exist. It is necessary to take the step of inviting companies to conduct such activities. Furthermore, tax and other incentives for upgrading plant and equipment are subjects to be considered.

3) Rehabilitation of Credit Scheme for SMEs

3110-5 Financial institutions for SMEs that need an initial start-up investment are required to promote local industry. On the other hand, regional financial institutions such as Rural BRI (BRI Unit Desa) are functioning, but it is a relatively small scheme and has little effect on SMEs. Accordingly, it is said that SMEs complain more about inadequate access to credit schemes rather than the high rates of interest on the credit.

4) Enhancement of Micro-Credit for Small Farmers and Fishermen

3110-6 Micro-credit for small farmers and fishermen is not sufficient. Ministries concerned operate their own micro-finance institute independently. They rely money sources for those finance institutes on donors. Accordingly, it seems that there are some qualms for the future. Farmers and fishermen are requested to arrange collateral, resulting in access to the micro-credit being difficult. Finance scheme, which commercial bank is able to operate as executing bank, is a subject to be considered.

5) Improvement of Education and Training System

3110-7 There are limited human resources, which possess experience and knowledge for promotion of local industries, in rural area. It is necessary to enhance capabilities of cooperatives and organizations of farmers and/or fishermen with extension system as well as capacity buildings of human resources, in order to promote local industries, in which agricultural and fisheries processing industries are centered on, considering the current status and needs of local region.

3.2 Fisheries Sector

3.2.1 Fish Consumption and Intake Volume

321-1 The fisheries sector plays an important role in food balance in Indonesia, particularly with regard to protein intake. The total fishery production in 2002 was about 5.21 million tons (National Fishery Statistics 2004), and the total fish consumption in the same year was about 4.15 million tons (Food Balance Sheet of the Ministry of Agriculture 2001-2002). The yearly fish consumption per capita was 19.7 kg in 2002 (Food Balance Sheet). By contrast, the cattle meat production in 2002 was 1.77 million tons and the consumption was 1.81 million tons (National Livestock Statistics 2003), the production of eggs was 0.946 million tons with 0.946 million tons consumed, while milk production was 0.493 million tons with 1.27 million tons consumed. The consumption of cattle meat and milk was higher than production with imports accounting for the shortfall in domestic production. The consumption per capita in 2002 was 5.75 kg of meat, 4.04 kg of eggs and 7.05 kg of milk.

321-2 Production of fishery products increased from 3.35 million tons in 1991 to 5.21 million tons in 2002 (a 56% increase for the 12 years), while consumption increased from 2.32 million tons in 1991 to 4.15 million tons in 2002 (a 79% increase for the 12 years) (Food Balance Sheet of the Ministry of Agriculture 2001-2002). The consumption per capita of fishery products in 1998 was 17 kg and increased to 24 kg in 2003 by 41% from 1998, according to MMAF. For livestock products, the present production and consumption is much higher than that recorded in the 1970s, but there has not been a marked increase in the last 10 years (National Livestock Statistics 2004). The annual consumption of eggs and milk per capita increased consistently over the last 10 years, while annual per capita cattle meat consumption has fallen from a peak of 8.41 kg in 1996.

321-3 The daily food energy intake per capita in 2002 was 44 calories of fishery products, 40 calories of cattle meat and 29 calories of milk and eggs (Food Balance Sheet 2001-2002).

321-4 These figures show that the demand and supply of fishery products is increasing. The demand for fishery products are relatively increasing compared that of livestock products in recent years.

3.2.2 Policy and Institution for Fishery Promotion

322-1 An outline of “the Renstra (the Strategic Plan) for Development of Marine and Fisheries” in line with “the Program for Marine Development” and other relevant programs, which are parts of PROPENAS (the National Development Plan for 5 years), is described in Chapter 4 of this report. The main fisheries sector policies particularly for mid-term development are as follows:

1) To conduct fishing management to utilize fishery resources in a sustainable manner and to generate maximum economic effect
2) To promote aquaculture to respond to a high demand of fishery products
3) To promote value-added fishery products through upgrading of the quality, development of processed fish and diversification of the products

322-2 By implementing the above policies, purposes aiming at improving living standard of fishermen, aquaculture farmers and coastal communities, contributing to Indonesian economy, enlarging people's fish consumption, protecting natural ecosystem and motivating people's consciousness as a people of oceanic culture for the national unity and so on are focused.

(1) Institutions Relevant to the Policies

322-3 The Laws and/or ministerial decrees that are the basis for policies on capture fishery, fishery resources management, aquaculture and fish distribution, are as follows (new laws and decrees issued in 2002 and 2003 are listed in Table 3.2.1):

1) Institutions Relevant to Fishing Management

322-4 i) Ministry of Marine Affairs and Fisheries (MMAF) Ministerial Decree KEP.11/MEN/2004 on Base Ports for Fishing Vessel

- Base ports for foreign-flagged Fishing Vessels (article 2)
- Base ports for Indonesian-flagged Fishing Vessels (article 3)
- Base ports and transit ports for Indonesian-flagged or foreign-flagged Fishing Vessels (article 4)

322-5 ii) MMAF Ministerial Decree KEP.10/MEM/2004 on Fishing Ports

- Fishing port functions (article 7)
- Fishing ports classifications (article 10)
- Fishing ports development (article 13)
- Fishing ports operation (article 16)
- Fishing ports' bussiness (article 18)

322-6 iii) Government Regulation (PP) No. 141/2000 on Fisheries Business

- The central government gives a fishing license to fishing fleet with gross tonnage of 30GT or higher, the province gives a fishing license to fishing vessel with 10GT or higher up to smaller than 30GT, and the district gives a fishing license to fishing boat smaller than 10GT, respectively (article 10).

- The central government gives a fishing license to fishing fleet with engine of 90HP or higher, the province gives a fishing license with engine of 30HP or higher up to less than 90HP, and the district gives a fishing license to fishing boat with engine of less than 30HP, respectively (article 10).
- Fishing licenses issued by province and district are submitted to the DG of Capture Fishery of the MMAF and registered by the DG of Marine and Fishery Resources Controls (article 10).

322-7 iv) MMAF Ministerial Decree No. 45/2000 regarding Institution on Fishing Business License given by central government

- Institution on fishing business licenses given to personal or entrepreneur who engages in fishing activities or aquaculture for commercial purpose (articles 1- 2).
- This institution adapts to all commercial fishing activities and aquaculture in Indonesian Waters (9 marine zones) and Indonesian Exclusive Economic Zone (IEEZ) (articles 1-2).
- This institution regulates necessary fishing licenses for Indonesian and foreign fishing vessels.
- It regulates the fishing business license (IUP) that is given to the main business entity and the fishing letter/document (SPI) that is given to the each vessel which the business entity owns. The former must be renewed every 3 years (article 4). The latter is classified into 3 categories as followings: for big pelagic fish (renewal every 3 years), for small pelagic fish (renewal every 2 years), for demersal fish (annual renewal) (article 9).
- The contents described in the fishing business license are as follows (article 8):
  a) Fishing operation area
  b) Fishing gear used
  c) Fishing port
  d) Prohibited fishing method
  e) Vessel identity
  f) Name list and number of crew
  g) Vessel identity number of the member fishing vessel group

h) Obligation of SPI owner

- The DG of Capture Fishery of the MMAF gives a penalty based on the relevant law, if the licensee offends the contents of the license (article 27).
- For the use of the Fish Aggregation Device (FAD), the applicant is required to apply for setting that when he/she applies to get a fishing business license (article 29).

322-8 v) The Basic Fishing Law (UU No. 9/1985 on Fisheries)

- Since this law was provided under recognition of non-deterioration of fishery resources, there are few provisions about fishery resources management. (There are almost no descriptions of data collection method for captured fish, registration of fishing boat and vessel, restriction of fishing ground, fishing gear and target fish species.)
- Ban of trawl (article 6)
- Ban of dynamite and/or poison-use fishing (Penal person is imposed 10 years' imprisonment or less, or fine of Rp.100 million or less.) (articles 6, 7 and 24)
- Introduction of fishing license to all fishermen (companies/individuals) who operate fishing activities in Indonesian marine areas (except traditional fishermen) (article 10)
- There is no description about transfer, suspension and reissue of fishing license.
- Fishing controlling officer controls penalty against the fishing law and illegal fishing. (The officer can investigate fishing boat/vessel, document, fishing gear and the catch, but does not have a power to order to stop fishing boat/vessel and to arrest) (article 31).

2) Movement Related to Fishing Management in Line with International Regulations

322-9 - The government of Indonesia approved "Code of Conduct for Responsible Fisheries" made by FAO in 1995, and has been continuing effort to realize the implementation since then. The government's policy prioritizes on resources management for sustainable utilization of fishery resources that have not been given a high priority before.

322-10 - The government conducts stock assessment of potential resources by main fishing target species in IEEZ following the United Nations Convention for Law of Sea (UNCLOS) held in 1982, and regards 80%

of the potential as a total allowable catch (TAC). In addition, calculating average fishing efficiency by type of fishing methods, the government decides number of fishing licenses.

3) Institutions Related to Aquaculture

322-11 In PROPENAS, the increasing domestic consumption of fishery products and generation of employment were identified as major issues and the promotion of freshwater aquaculture, which requires low capital, was given a high priority. Afterwards, the government has also prioritized export promotion due to decentralization progress based upon the UU No. 22/1999 for strengthening economic and financial base of regional autonomies. MMAF has placed a high priority on the promotion of mariculture (Strategic Plan of Ministry of Marine Affairs and Fisheries, 2002). In 2002, the Directorate General of Aquaculture of MMAF has identified new target species for aquaculture promotion, namely prawn, grouper, seaweed and tilapia. The governmental direction for aquaculture development prioritizes an increase of the production. However, there is only a institutional support and preparation for managerial and technological aspects on aquaculture such as harmonization with environment, water dimension utilization, pathologic countermeasures and quality control of cultured fish. The followings are major laws and ministerial decrees.

322-12 i) MMAF Ministerial Decree No. 2/2004 on Aquaculture Business License

- Scope and business qualifications (Articles 2, 3 and 4)
- License issue mechanism, fishery business license (IUP) on aquaculture (chapter 3, articles 5 – 19)
- License documents for fish transporting vessels (chapter III, articles 20-28)
- License documents for fish transporting vessels which agented by non-fishery company (chapter III, articles 29-32)
- License period and extension (articles 36-43)
- Analysis on environmental impact (articles 45-46)

4) Institutions Related to Fish Trade

322-13 MMAF Ministerial Decree No. KEP.21/MEN/2004 on Fish Product Quality Controlling System for European Union Market

- Qualifications (articles 3 and 4)

- Implementations (articles 8 and 9)
- Vessel qualifications (enclosure 1)
- Landing and Distribution Qualifications (enclosure 2)
- Fish Processing Units Qualification (enclosure 3)
- Fish Product Handling Qualification (enclosure 4)
- Production Monitoring and Surveillance (enclosure 5)
- Labeling and Packaging (enclosure 6)
- Storage and Transportations (enclosure 7)

5) Subjects to be considered in the Future

322-14 i) The responsibilities of central and regional government relating to fishery resources management following the decentralization must be clarified by law and institution. The central government needs to prepare a guideline for fishery resources management implemented by province.

322-15 ii) The district and municipality manages marine area within 4 miles from shore and the province manages the same out of 4 miles' line up to 12 miles from shore due to the decentralization. However, knowledge and ability of regional autonomies' administrators are insufficient, so that there is almost no preparation of proper institution and implementation of fishery resources management. Therefore, a guideline is important to clarify a national direction for guidance, enhance ability of regional autonomies' staff and prepare fishery resources management system in coastal communities.

322-16 iii) The existing laws and regulations relating to fishing management are required to be updated. Therefore, revisions are necessary to realize decentralization and international sustainable utilization of fishery resources, including data collection method for captured fish..

322-17 iv) Nobody has an ownership of fishery resources until they are caught. Basically fishery resources are in free access. Therefore, the central government has a responsibility to establish a proper resource management system, and needs to make an effort to realize common direction for resource management to some extent with regional autonomies under the decentralization.

322-18 v) Regarding fishing management, MMAF Ministerial Decree No

KEP.60/MEN/2001 on Regulation for Fishing Ships in IEEZ stipulates fishing rules in IEEZ outside of 12 miles from shore. It describes types of fishing license, tonnage of fishing vessel, fishing method allowed, penalty for illegal fishing and items that foreign vessel must follow etc. in detail. However, the area for coastal capture fishery is within 12 miles from shore, and there are almost no systematic rules and regulations for fishing in this area. (As mentioned in "Institutions relevant to fishing management", there are many different management regulations and contradictions. Though MMAF recognizes PP No 141/2000 on 2nd Amendment of "PP No.15/1990 on Fisheries Business" as a regulation for fishery resources management, it is urgently necessary to review these regulations based on the above laws and ministerial decrees and prepare detailed implementation rules.)

PP No 141/2000 on 2nd Amendment of "PP No.15/1990 on Fisheries Business"	MMAF Ministerial Decree No KEP.60/MEN/2001 on Regulation for Fishing Ships in IEEZ
Article 10: IUP, SPI, SIKPPII, and SIKPII given for vessels implementing capture fisheries within 12 miles from shore must not oversize 30 GT and must not use foreign capital and men.	- Article 4 (1): Joint venture in vessel utilization management is implemented by making foreign vessel as part of capital on joint venture fishery company according to the rules in Foreign Capitalization (this article also includes fishing within IEEZ area) - Article 18 (1): License in vessel utilization management is implemented by giving opportunity to the foreign company to implement fish capture within IEEZ area.

322-19 vi) Illegal, Unregulated and Unreported fishing (IUU), including dynamite fishing and poison-use fishing, has been hindered the sustainable development of fisheries and fisheries communities. It is necessary to strengthen the institutional arrangement, resource management scheme and enforcement of law and regulations in order to combat IUU fishing.

322-20 vii) It is necessary to establish a legal framework and regulations for measures necessary for management and technical support on the sustainable and environmentally friendly development of aquaculture. In particular, a preparation of legal framework from aspect of proper and sustainable utilization of open waters is inevitable, since rearing technology with environmental harmonization is unsettled.

322-21 viii) With regard to aquaculture which uses open waters such as lake, river and coastal area, public sector should take necessary measures such as restriction of area for the culture, number and size of setting net cage, allowable number of fish in the cage, licensing, controlling of feeding and prescribing, system for environmental monitoring and expenditure of necessary social cost. These are public sector's roles and important.

322-22 ix) As a necessity of support by public sector for aquaculture promotion as a whole, quality analysis of seed and cultured fish and conservation of bloodstock with superior genetic characteristic etc. are important. Extension service given to aquaculture farmers technological and managerial know-how enables them to produce high quality fish with low cost and preparation of guideline for aquaculture, which shows rearing techniques and reduces bad effects to natural environment, is also indispensable.

322-23 x) It is necessary to strengthen the coordination among stakeholders for development of aquaculture for smooth implementation of policies covering various aspects like environment, water surface utilization, measures for fish disease, quality of products, etc.

(2) Fishery Extension System

322-24 In July 2001, the Center for Fisheries Education and Training in the MMAF planned for the deployment of fishery extension staff. In the first plan, those who had a background in fishery education in the existing agricultural extension staff were to be separated into various specialties, such as fishing, aquaculture, processing, distribution economics, and so forth. Afterwards, the scrutiny made by the Indonesian Fishery Society was repeated several times in the Center. Furthermore, a new system of fishery extension staff will be launched individually in each district as soon as it is approved by the MMAF within this year (2002), and local governments are to gain autonomy for recruitment and their allocation in this system. This system is expected to be approved by the government as "Guidance for Fisheries Extension Activities". In this system the extension staff are classified into the four categories shown below:

i) Functional Extension Worker (school teachers, etc., mainly prepares extension plans; assigned by the district)

ii) Non-functional Extension Worker (main extension staff at the sites)

iii) Part-time Extension Worker (temporary extension staff employed on annual contract basis)

iv) Staff of Fishery Company (company employee assigned by the district)

322-25 No. ii) above is a civil servant in the district, iii) is a part-time worker, and i) and iv) get special payment for the commission from the district. The qualification to be a fishery extension worker must be equivalent or higher than D3 (graduation from fishery higher education academy).

Subjects to be Considered in the Future

322-26 The system of the fishery extension workers will be formally initiated soon, and the workers will have to follow the policies and directions of each district since they are civil servants in the districts. Hence, the activities of fishery extension workers are dependent on the financial situation and the important issues for development in each district. It is realized, however, that it is necessary to standardize the operations guideline, the content of activities, and the level of skills to a certain degree in order to empower fishermen and improve fishery techniques. Thus, the tasks of the MMAF include policy-making for the education of fishery extension workers in the district and the maintenance of practical extension systems.

(3) Fishery Education

322-27 The MMAF has jurisdiction over fishery universities, fisheries higher education academies, and fishery high-schools not under the Ministry of Education. Thus, the MMAF includes financial management of these educational institutions. Despite the trend of encouraging decentralization in Indonesia at present, the management of the above educational institutions falls directly under the MMAF, including the maintenance of training vessels and dormitories which must be handled and funded by the Ministry.

322-28 Graduates from universities belonging to the Ministry of Education have the rank of S1 (bachelor degree), S2 (master degree), and S3 (doctoral degree). However, graduates from institutions belonging to the Technical Ministry such as MMAF are assigned different status, as follows:

Diploma 1 (D1) – from fishery high-school without general subjects
D2 – from fishery high-school with general subjects
D3 – from fishery higher education academy
D4 – from fishery university.

322-29 The educational systems of the Ministry of Education and the Technical Ministry such as MMAF differ in terms of the distribution of lessons, that is, theory and practice. In the former, the distribution of theory and practice is divided in a 3:2 ratio. In the latter, the distribution is 2:3.

322-30 When the graduates become public officials in national or local governments, those from schools belonging to the Ministry of Education tend to be researchers and administrators. On the other hand, those from the schools belonging to the Technical Ministry such as MMAF tend to be engineers. The graduates from university tend to be fisheries' staff of central or regional government, staff of port administration, quarantine officer of airport and technical staff of fishery company, and those from fishery high school tend to be fishery extension workers of the district.

322-31 Improvement of the ability of school teachers to deliver international standardized curriculums for fishery education is a major issue. Also, there are other issues, such as decrepitude of practical machinery and infrastructures.

322-32 MMAF has recently revised the curriculums in the light of decentralization process and economic globalization. Fishery university and fishery academy curriculums consist of five courses: fishing technology, machinery for fishing vessel and fish processing, fish processing technology, aquaculture and fishery resources. The fishery high school curriculums consist of four courses: fishing technology, machinery for fishing vessel and fish processing, fish processing technology and aquaculture. The curriculum for fishing technology was made based on Standard for Training and Certification of Watch-keeping Fishing Vessel Personnel (STCW-F1995), International Maritime Organization (IMO) and the Code of Conduct for Responsible Fisheries made by the FAO. The curriculum for machinery for fishing vessel and fish processing was made based on IMO, and the fish processing curriculum is based on HACCP, and the curriculum for aquaculture is based on AMDAL (Analysis for the Impact of Environment: *Analisa Mengenai Dampak Lingkungan*), a kind of national standard. Graduates of the fishing technology course can get a certificate to be a sailor based on article no. 2 of the National Education Law enacted in 1990. Those of the fish processing technology course get a certificate of a controller of fish quality.

322-33 School teachers at both fishery university and high school levels must be graduates of fishery university or university which has a fishery faculty. Also the applicant must have an experience of having lecture at university. In case of technical instructor for navigation practice and engineer of vessel engine, the national qualification is different between fishery university and high school. The former requires "Grade I " in both navigator and engineer, and the latter requires "Grade II ".

Educational Institute managed by MMAF

University	No. of Teachers		No. of Students	
	2002	2004	2002	2004
Fisheries University of Jakarta	69	69	1,000	938
Fishery Academy				
Sidoarjo Fisheries Academy	20	20	210	258
Bitung Fisheries Academy	13	13	268	254
Sorong Fisheries Academy	10	10	67	221
Fishery High School				
Fisheries High School at Aceh	6	5	260	254
Fisheries High School at Pariaman	10	13	306	292
Fisheries High School at Pontianak	9	9	331	331
Fisheries High School at Tegal	29	30	366	416
Fisheries High School at Bone	13	12	260	255
Fisheries High School at Waehelu, Ambon	10	7	260	310
Fisheries High School at Sorong	16	3	341	321
Fisheries High School at Kota Agung	-	3	-	89
Fishery Training Center				
Fisheries Training Center at Medan	15	15	-	-
Fisheries Training Center at Tegal, Central Java	35	35	-	-
Fisheries Training Center at Banyuwangi, East Java	20	20	-	-
Fisheries Training Center at Aertembaga, North Sulawesi	18	18	-	-
Fisheries Training Center at Ambon, Maluku	2	2	-	-

Note: As of August 2002 & September 2004, Source：Fishery Education Training Center 2002 &2004

Subjects to be Considered in the Future

322-34 - We recognize that sustainable development and utilization of marine and fisheries resources have the highest potential in promoting the national economy, stable food supply, and nutritional improvement. Thus, MMAF has improved curriculums for fishery education to meet social needs. The relevant topics include resources management, environmental conservation, rural development of coastal and remote islands, improvement of the quality of fishery products, and health management. However, it is a crucial issue to secure sufficient number of teachers and enhance their capability sustains the curriculums.

322-35 - It is also important to provide academic teaching materials, supplementary teaching tools and equipment for practice on implementation of the new fishery education.

3.2.3 Fishery Production and Technology

(1) Capture Fishery Production

1) Production

323-1 According to the fishery statistics published in 2004, the total yield of fishery production, which is the sum of capture fishery and aquaculture production in 2002, was approximately 5.21 million tons. Marine capture fishery production was 4.074 million tons, or 78% of the total. Inland open water capture fishery production in rivers and lakes was about 0.32 million tons, or 6.1% of the total.

323-2 As for marine fishery, in compare to the years of 2000, the total production shows 7.0% increase. This is mainly due to increase of marine capture fishery production. The total production increases 1.4 times of the 1990's (refer to Table 3.2.2.).

323-3 Of the total marine fishing establishments, the number of fishing establishments "without boats" was 62,510 in 2002. "Non-powered boat" fishing establishments have decreased, reaching 201,314 in 2000. The "Outboard engine" of "Powered boat" fishing establishments category registered a 1.73-fold increase, from 71,185 in 1991 to 123,343 in 2002. "Inboard engine" fishing establishments increased from 46,186 in 1991 to 102,930 in 2002. This rate of increase is 2.23 times. These figures show an increase in marine fishing establishments and more developed motorization of fishing boats.

323-4 It is obvious that motorization of fishing boat is high in Western Java, Eastern Sumatra, Malacca Strait, South-western Kalimantan and Eastern Kalimantan, where the fishery production is high. It means fishing effort in the above areas is high. In particular, in Riau and Southern Kalimantan, in-board engine vessel occupies 58% and 88% of the total number of fishing boats, respectively. In Malacca Strait and Eastern Sumatra, it occupies more than half of the total. 70% of the fishing boats are boat-without engine in Eastern Indonesia such as East and West Nusa Tenggara, Maluku and Papua. (National Fishery Statistics 2004)

2) Target Species of Capture Fishery

323-5 Of the total of 4.07 million tons produced by the marine capture fishery in 2002 as shown in Table 3.2.2, scads (*Decapterus spp*.) has the highest production of 301 thousand tons, followed by Eastern Little Tuna *(Euthynus spp.)* of 267 thousand tons, prawns of 237 thousand tons, Skipjack Indian mackerels of 222 thousand tons, Skipjack tuna *(Katsuwonus)* of 203 thousand tons, anchovies (*Stolephorus spp*.) of 169 thousand tons and tunas of 148 thousand tons. The production of many other species was several tens of thousands of tons. There is year to year fluctuation in the catch volume, but it has tended to increase as a whole since 1990, except for Indian oil sardinella (*Sardinella longiceps*), which fell drastically in 1999 to 2000 and increased again in 2001 and 2002. The capture production of benthos other than finfish ranges from hundreds of tons up to 30 thousand tons. It has tended to increase slightly overall, with the exception of bivalves (National Fishery Statistics 2004).

323-6 Classifying into sea areas, in Eastern Sumatra, Malacca Strait and Western Java, finfish for mainly local consumption such as scads, yellow strip (*Selar spp.*), drums (*Scianidae*), sardine, sharks, rays, squids and bivalves, and crustaceans such as crabs and shrimps are landed a lot. In Nusa Tenggara, South Sulawesi, North Sulawesi, Maluku and Papua, large quantities of tunas, skipjack, and black tiger prawn(*Penaeus monodon*), most of which are exported by the Indonesian fisheries sector, are captured. Fishing companies buy these catches and export them to foreign countries by air mainly from Bali. Groupers that are highly demanded in the market of Hong Kong, Taiwan, Malaysia and Singapore, are landed mainly Western Sumatra and Malacca Strait etc., where are closer to those foreign market. (National Fishery Statistics 2004).

3) Fishing Methods

323-7 In marine capture fishery, the number of *payang* fishing units has increased every year, from 16,000 in 1990 to 33,800 in 2002. The number of anchored *bagan* fishing units has increased at 18,200 in 2002. On the other hand, movable *bagan* fishing units continued a slight increase, from 10,000 in 1990 to 12,600 in 2002. The number of gill net fishing units that can be easily operated with relatively small capital has increased significantly from 167,000 in 1990 to 255,500 in 2002.

323-8 Skipjack pole & line fishing and tuna long line fishing are the export fishing types. The number of skipjack pole and line units reached to a peak of 2,616 in 1994 from 1,378 in 1990, then fell to 1,581 in 2000 and rise again to 2,092 in 2002. The number of tuna long line fishing units has sometimes increased, sometimes decreased, fluctuating from 879 in 1990 to 2,870 in 2000 and 2,264 in 2002. Purse seine fishing, which was introduced from foreign countries, has increased in number from 6,715 in 1990, and reached a peak of 13,213 in 2002.

4) Production by Type of Fishing Methods

323-9 The statistical data of the marine capture production by type of fishing methods (fishing gears), as tabulated in Table 3.2.3, shows an increase in general for 13 years since 1990. In particular, cast net and Danish seine net, which need low capital and easy to be engaged in, have become around 3.9

times and 3.4 times increase in the recent 10 years, respectively. The production caught by gill nets has increased 51% in 10 years since 1993 until 2002. Otherwise, an increase of capture production of scoop nets from 60,666 tons in 1993 to 67,223 tons in 2002 (11%), purse seine from 515,291 tons in 1993 to 709,128 ton in 2002 (38%), tuna long line from 29,469 tons in 1993 to 62,952 tons in 2002 (114%), payang from 267,449 tons in 1993 to 420,048 tons in 2002 (57%), skipjack pole & line from 82,991 tons in 1993 to 121,825 tons in 2002 (47%), movable bagan from 149,358 tons in 1993 to 224,283 tons in 2002 (50%) and trolling from 92,774 tons in 1993 to 132,255 tons in 2002 (43%). It is presumed that there is a particular increase in the number of cast net, Danish seine net and gill net, which is collateral increase of number of artisanal fishermen.

323-10 Non-movable type bagan fishing, tow net and shell fish collection have almost remained unchanged in terms of the capture production for the 10 years. Payang fishing, Danish seine net, purse seine net, gill net, tuna long line, line fishing including pole and line fishing, trolling and trap fishing etc., have increased the capture production and number of fishing units as well in the same period. The number of movable bagan fishing units has not increased, but the capture production has drastically increased in the same period. It can be said that the fishing efficiency has become high in movable bagan fishing. The numbers of non-movable bagan, guiding barriers and stow net fishing units have slightly increased or remained static, but capture production has remained on the same level or tended to decrease. In shell fish collection, the number of fishing units and also the capture production have decreased.

323-11 As a whole tendency, the decrease of capture production of stow net and guiding barriers, which are negative fishing methods waiting fish entrapped naturally near shore, and decrease of number of fishing units and the capture production in shell fish collection, mean deterioration of resources in near shore. This fact is also related to the development of motorization of fishing boat. The increased capture production of payang, movable bagan, purse seine, pole and line and trolling derives from an increase of the productivity as resulted from motorization and enlargement progress of fishing boat. The capture production of purse seine, movable bagan fishing and trolling has tended to decrease in recent years. Pelagic fish, as a main target of the above fishing methods, tends to be decreased and it seems to be a serious phenomenon of the resource deterioration. (National Fishery Statistics 2004)

5) Fishermen

323-12 The number of marine fishermen was approximately 2.57 million in 2002, composed of 1.28 million full-time fishermen, 0.92 million part-time fishermen who mainly spend their time fishing, and 0.372 million part-time fishermen who mainly spend their time in other occupations. On the other hand, the total number of inland open water fishermen was approximately 0.75 million, an increase from the 0.497 million in 1991. In comparison to 2000, the sum of all types of fishermen registered a 7.2% increase.

323-13 The MMAF estimates that, throughout Indonesia, there are 5 million fishermen including unregistered ones who were not recorded in the statistics in 2004. Most of them are poor people who moved from large cities to find employment.

323-14 There is no statistics about fishermen's income. As a result of the Coral Reef Management Project done by DG of Coastal and Small Islands of MMAF, which surveyed fishermen household income in 10 provinces, the monthly income per household was in the range between Rp. 82,500 and 225,000. In 1996, the Bogor Agricultural University surveyed household income of artisanal fishermen of Lombok Island, and reported an income range of between Rp.17,545 and 53,626 per month. The minimum wage of laborers in Indonesia is regulated in each province. The range of monthly income is between Rp. 310,000 (East Java Province) and Rp.572,562 (East Kalimantan Province) in 2004.(minimum wage, Ministry of Labor and Immigration 2004). The fishermen's household income is very low compared to the minimum wage regulated by provinces.

6) Fishery infrastructure

323-15 Fishery infrastructure consists of fishing boats and fishing ports/fish landing places. In Indonesia, there were 22 fishing ports and 570 fish landing places as of 2002, as shown in the table below.

Breakdown of fishery infrastructure

Type A	Type B	Type C	Type D	Total
5	14	3	570	592

Type A: Oceanic Fishing Port (National fishing port; corresponds to pelagic fishery)

Type B: Archipelago Fishing Port (National large-scale main fishing port)

Type C: Coastal Fishing Port (Main fishing port; corresponds to coastal fishing)

Type D: Fishing Landing Place (Regional landing place)

323-16 As mentioned previously, under article 22 of the Decentralization Law of

1999, the management body of type C fishing ports was transferred to provincial governments and Type D landing bases were transferred to districts. The classification for definition of each fishing port is as follows.

Type of Fishing Port	Fishing Vessel using the Port	Number of Fishing Vessel using the Port per day	Daily Fish Landing Volume	Land Area for Fishery Facility
Oceanic Fishing Port	＞ 60 GT	100	200 MT	30 Ha
Archipelago Fishing Port	15 – 60 GT	75	50 MT	10 Ha
Coastal Fishing Port	5 – 15 GT	50	15 - 20 MT	5 Ha
Fish Landing Place	＜ 5 GT	20	5 MT	1 Ha

Source：Directorate of Capture Fisheries Infrastructure, MMAF

7) Fishing controlling and surveillance

323-17 The DG of Marine and Fisheries Resources Controls organized the Civil Office Investigator (PPNS) system in 2002 and appointed 600 members, delegating power and responsibility for the control of illegal fishing, penal regulations and arrest by the fishing law revised in 2002. The plan is to train 4,000 people in the future. The DG has 12 fishing patrol vessels, but this is not sufficient. So they cope by riding together in the patrol vessels of the navy and marine police (POLAIR). Out of the total 112 patrol vessels owned by the navy, 42 patrol vessels are engaged in fishing patrols. The MMAF bears the cost of fuel for the controlling operations. Currently the DG has been developing the VMS (Vessels Monitoring System), and the system consists of:

- Patrol boat system;
- Patrol airplane system;
- Satellite system;
- PPNS (Civil Office Investigator System);
- Fishermen.

323-18 The DG contributes to the budget for community-based fishing management projects to support fishermen groups' activities by establishing micro-credit institutions in 6 provinces - Aceh, South Sulawesi, West Nusa Tenggara, Bali, Maluku and Jambi.

323-19 The Law No. 22 of decentralization of 1999 stipulates that each province and district should prepare regional law and regulation on fishing licensing system and controlling based on the national basic policy which is shown in the 3.2.2 "Policy and Institution for Fishery Promotion" in province or district where coastal communities have customary law "*awig-awig*", and obliges to prepare new regional law and regulation newly where there is no "*avic-avic*". Fishing licensing system and controlling are necessary for the purpose of fishery resources management, but they does not function effectively without legal enforcement.

8) Fishery Resources Management and Sustainability of Capture Fishery

323-20 The Assistance Strategy Formulation Study conducted in 2001 confirmed that the development potential of fishery resources in marine capture fishery is 6.19 million tons in Indonesia, and the total allowable catch is 5 million tons per annum. The marine capture production in 1999 was 3.68 million tons, equivalent to 60% of the potential. It is politically important to reduce fishing effort, recover the resources condition and manage it in the western sea of Indonesia, where the resources are almost exhausted. And it is also necessary to utilize fishery resources in a sustainable and efficient way in the eastern sea, where fishery resources are still in good condition. Details of the potential and utilization rates are shown in the table below for each area.

Marine Fishery Resources Potential (MSY) and Capture Fishery Production

Sea Area	MSY (ton)	Capture (1999) (ton)	Utilization Rate (%)
1. Malacca Strait Area	238,900	537,793	225.1
2. South China Sea Area	1,220,800	404,528	33.1
3. Java Sea Area	842,500	674,834	80.1
4. Flores and Makassar Strait Area	663,200	609,211	91.9
5. Banda Sea Area	245,900	361,111	146.9
6. Seram Sea - Tomminy Bay Area	577,500	87,552	15.2
7. Pacific Sulawesi Sea Area	687,900	181,891	26.4
8. Arafura Sea Area	791,300	179,110	22.6
9. Indian Ocean Indonesian Sea Area	904,600	646,414	71.5
Total	6,172,600	3,682,444	59.7

Source: National Commission on Stock Assessment of Marine Fisheries Resources 1998, National Fishery Statistics 2001.

323-21 Based upon the decentralization law, marine and fishery resources in the areas within 4 nautical miles from shore shall be managed by district and municipality, areas between 4 nautical miles and 12 nautical miles by province, and areas beyond 12 nautical miles by the central government, respectively. However, since the decentralization is still in progress, it takes more time to establish systems for fishery resources management in regional autonomies. Under the present circumstances, it is desirable that the regional and local governments should support community-based fishery resources management. It is one of the important measures for regional autonomies to make communities' customary law *"awig-awig"* to be models of an institution for local government's fishery resources management. The provinces and districts located in the coastal areas have been seriously suffering from coral destruction, marine water pollution and deterioration of fishery resources caused by illegal fishing such as dynamite fishing and poison-use fishing, and over-fishing caused by foreign and domestic fishing fleets. In taking countermeasures for such fishing, so called as "IUU Fishing", one of the measures would be improvement of capacity of local community in order to protect fishing resources as Indonesian common resources in cooperation with the central government. Other possible problems are as follows;

- Deforestation of mangrove;
- Bad effect on natural environment due to extensive increasing of shrimp brackish pound;
- Conflict of interest among the community and stakeholders.

323-22 Under the decentralization policy, assistance projects supported by foreign donors, which directly go to communities, have increased. The World Bank, ADB and USAID etc., have been implementing projects to improve the livelihood of coastal communities and capacity building of regional and local governments focusing on community-based coastal resources management with consideration given to environmental protection. However, these donor agencies have limited support program from a view of fishery development for the sustainable use of fishery resources by implementing coastal resources management. The MMAF puts high priority on appropriate fishery resources management for the sustainable development of capture fishery, which is a source of stable supply of fishery products as an important protein resource and an income resource for coastal communities.

323-23 JICA conducted "the Study on Fisheries Infrastructure Support and Coastal Communities Development Plans in Eastern Indonesia" during the period from May 2001 to October 2003, in order to formulate a master plan for raising income of poor fishermen and stabilizing supply of fisheries products in NTB and NTT located in the Eastern Indonesia which remains undeveloped. According to the Study, the development issues for coastal communities in this area are identified as shown below:

i) Per capita annual income of fishermen households in the study area is generally lower than the national average for small scale farmers who owns less than 0.5 ha of farmland (about Rp.1.6 million). The income level of fishermen in about half of the major fishing villages is on the poverty line (Rp.74,272 per month).

ii) Because of poor fishing equipment such as boats and gears, fishing activities are limited to coastal fishing grounds, and the offshore resources have not been effectively utilized.

iii) Economic losses sustained during the marketing and processing stages are quite large due to the insufficient supply volume and high price of ice, inappropriate preservation methods of fresh fish, the rancid quality and low unit price of dried and salted fish.

iv) Available credit system for purchasing fishing gear and fishing operation is limited to KUD credit schemes with very high interest rates ranging from 25% to 100% per annum. Subsequently, most of fishermen are economically isolated.

9) Subjects to be Considered in the Future

323-24 The development subjects are as follows:

323-25 - In some areas, fishery resources' utilization is above the maximum sustainable yield, especially in Western Indonesia, because the number of artisanal fishermen and fishing efforts has been increasing. Therefore, after clarification of the powers on fishery resources management between central government and regional autonomies, which is mentioned in the subjects of "3.2.2.(1) Institutions relevant to the policies", it is necessary to prepare a guideline by central government for fishery resources management and directions for the management of regional and local governments, and to support community-based fishery resources management.

323-26 - As a result of the policy to increase of capture fishery production, some sea areas and target fish species have been suffered from the deterioration of the resources condition today. It is a transition period for a direction to sustainable utilization of fishery resources based upon its appropriate management. Hence, it is important for regional and local governments and also communities to prepare management regulations for coastal fishery resources and to implement them.

323-27 - Around 90% of total fishermen are poor. This fact is a constraint for education and enlightenment towards them. Therefore, administrative supports are necessary in both, soft components such as informative services and financial services and hard components like infrastructure improvement of fish landing places in order to encourage fishermen to organize themselves as a group and vitalize their economic activity.

323-28 - In remote islands, the majority of residents are poor fishermen who don't have an alternative livelihood other than fishing and who have access only to a very limited market. Since, in Eastern Indonesia in particular, there are lots of small, remote islands that remain undeveloped, it is important to develop coastal communities in these areas.

323-29 - There is a lot of losses of fish catch due to fishermen's unawareness of fish quality or economic value, improper handling of fish on the fishing boats and insufficient use of ice- and fish-boxes etc. It is necessary to instruct and educate these fishermen about basic technology for on-boat fish handling, while also explaining the relationship between fish quality and sanitary improvement and economic value.

323-30 - Rehabilitation of fishing ground is required particularly in western part of Indonesian water surface as well as at north coastal area of Java island. Rehabilitation activities will bring merits on income increase of coastal fishermen.

(2) Aquaculture

1) Aquaculture Production

323-31 Before 1998, fishery statistics did not contain any data on marine aquaculture; data on this have been included since 1999. (The figures and numbers mentioned hereinafter in sentences of this report are cited from the 2002 data reported in the National Fishery Statistics 2004.)

323-32 In 2002, the total production of freshwater and brackish water aquaculture and mariculture was approximately 1,137,000 tons, with only 429,000 tons from freshwater aquaculture, 473,000 tons from brackish water aquaculture and 235,000 tons from mariculture. As of 2002, aquaculture production occupied approximately 21.8% of the total fishery production of Indonesia. It has increased 1.8-fold in the 10 years since 1992. Freshwater aquaculture production such as simple digging stagnant water pond culture, which can be conducted at low cost, tends to increase every year. Mariculture consists mainly of floating cage cultures of groupers or sea bass and seaweeds like *Eucheuma,* from which Karagenan is extracted.

2) Target Species of Aquaculture

323-33 In freshwater aquaculture, common carp has the top share, at 199.6 thousand tons, 46.5% of the total production in 2002, followed by tilapia at 18.4%, catfish at 9.2% and gouramy at 5.4%. Milkfish culture had the top share of brackish water aquaculture production at 47% in 2002, followed by giant tiger prawn at 23.9%. Since the consumer price of common carp and catfish is not expected to rise, the cost reduction is required for aquaculture production. Most mariculture consists of the farming of seaweed like *Eucheuma* etc. MMAF has a plan to construct hatcheries in 5 places in whole Indonesia to strengthen promotion of marine finfish aquaculture such as groupers The hatcheries in Central Sulawesi and North Maluku have already been started to construct. In Bali, hatchery with super intensive method for napoleon fish and groupers etc. was opened by the cooperation of Denmark in May of 2002. Aquaculture production is summarized by species in the Table 3.2.4.

3) Fish farmers

323-34 The number of aquaculture business units is approximately 1.25 million, and there were 2.27 million fish farmers in 2002. Compared to 1993, this is a 1.08-fold increase of aquaculture business units and a 1.16-fold increase in the number of fish farmers. The number of pond culture farmers and paddy field culture farmers fluctuates from year to year. The number of cage culture farmers and brackish water aquaculture farmers tends to increase every year. Most freshwater aquaculture farmers have another jobs like agriculture etc. Seed producers of freshwater aquaculture are mainly entrepreneurs who have a certain business scale, technical and managerial skills. But most producers of grow-out fish are artisanal farmers or family business entities. Constraints of artisanal farmers are very limited capital and lack of technical and managerial know-how. Aquaculture business development between 1990 and 2002 is summarized in Table 3.2.5.

323-35 In comparison with aquaculture farming areas, brackish water aquaculture increased 1.33-fold in the 10 years from 1993. Freshwater pond culture also increased 1.8-fold in the same period. On the other hand, the production of each has increased, so the productivity of per unit area has generally improved. Most of fish farmers are poor, and operate extremely small-scale pond culture as well as farming such as rice cultivation. The changes in the area devoted to aquaculture since 1990 are shown in Table 3.2.6.

4) Comparison of Aquaculture by Region

323-36 Java had the largest share, with 61.5% of the total number of pond culture units in Indonesia, as shown in Table 3.2.7. Sumatra had 27.9% of the total. Both Java and Sumatra had 89.4% of the total in Indonesia. Regarding brackish water aquaculture, Java had 48.6%, Sulawesi 23.9% and Sumatra

18.23%. 72.5% of mariculture was concentrated in Bali and Nusa Tenggara, and 22.7% in Sulawesi.

323-37 In 2002, seed production of common carp contributed a 31.2% share, tawes (Java narbs, *Puntius javanicus*) 25.9%, tilapia 18.9%, nilem carp 1.3% catfish 12.5%, and gouramy 3.1% of seed production in the whole Indonesia. The majority of freshwater aquaculture species are produced in Java, followed by Kalimantan 18.2%, and Sumatra of 0.8%. Most seeds for freshwater aquaculture were provided in Java and Sumatra before 1998. However, it can be observed that other areas have developed seed production within the year. Seed production in 2002 is shown in Table 3.2.8.

323-38 In 2002, the production of edible sized fish (pond culture) was 254 thousand tons in Indonesia as a whole, consisting of common carp accounted for 32.9%, tilapia for 20.3%, catfishes for 18.5%, tawes for 4.3%, nilem carp for 5.5%. As or characteristics by region, Sumatra and Java produce 89.4% of the total production of grow-out. In Java, seed production and fish aquaculture production are both very high. In this regard, Java can be called the center of freshwater aquaculture in Indonesia. In Sumatra, on the other hand, fish grow out production of aquaculture is greater than seed production. The supply of seed production in Sumatra is dependent on Java and other regions. Regional aquaculture pond production in 2002 is shown in Table 3.2.9.

323-39 Java, Sulawesi, and Sumatra are the three main production areas for brackish water aquaculture, in that order. Those 3 areas occupy 90.8% of the total production in Indonesia.

323-40 Mariculture production in Indonesia accounted for 235 thousand tons: 72.5% in Bali-Nusa Tenggara, followed by Sulawesi at 22.7% and Sumatera at 3.3%. Bali-Nusa Tenggara is the main region for mariculture.

5) Market Value of Aquaculture Fish

323-41 In comparing the productive values of aquaculture, it is not easy to compare the productive value of freshwater species, brackish water species, and mariculture since the market price differs greatly depending on target species, size of fish and freshness etc. However, the productive value of freshwater fish for domestic consumption is relatively low compared with the production volume. In brackish water aquaculture, the productive value of prawns is relatively high compared with productive volume. Such a case is also applied to mariculture, with products like groupers and sea bass.

323-42 At a fresh fish sale corner of a supermarket in Jakarta, a August 2002 survey revealed that the retail prices (freshness kept at standard quality levels) are Rp.12,000 to Rp.14,000 per kilogram for carp and patin (catfish) and Rp.25,000 to Rp.30,000 per kilogram for giant gourami. In the same market, the retail prices are Rp.120,000 to Rp.130,000 for a kilo of black tiger prawns, Rp.100,000 to Rp.160,000 for *Macrobrachium rosenbergii* (freshwater giant shrimp), and Rp.35,000 to Rp.40,000 for edible frog. Generally, the price of freshwater fish, which has traditionally been eaten daily by Indonesian people, is low.

6) Sustainability of Aquaculture

323-43 It is important for securing the sustainability of aquaculture to supply species and production volume that matches market demand. At the same time, using cost-effective technology, securing or producing seed at low price and in stable condition, and the establishing and disseminating of grow-out technology are also important factors. In general, most artisanal fish farmers learn fish culture by copying neighbors who engage in aquaculture, and do not have a good technology or skill and business management. Some fish farmers get market information through extension workers and radio broadcast. However, it is relatively difficult for majority of artisanal fish farmers to select the market, since some certain middlemen directly contact them and buy fish.

323-44 Consideration of natural water environment is also an important issue. Utilizing natural waters such as lakes, rivers and coastal marine waters for aquaculture are able to cause water pollution and frequent occurrence of fish diseases, if improper culture methods, such as concentration of culture cages and high density of rearing fish, are to be taken.

7) Fish Disease

323-45 An unavoidable issue in fish culture is how to take a measure against fish disease. Although fish disease is a serious problem in aquaculture utilizing natural waters, it is a particularly difficult problem in artificial rearing environments such as pond and aquarium, when the water quality management and feeding amount become unbalanced. Once fish disease occurs, it infects other fish reared in the same water body and often gives destructive damages. It is difficult to identify species of virus, bacteria and parasites. Therefore, strengthening research systems for preventive measures and quarantine are urgently required.

323-46 Large numbers of common carp have died from virus in Java in 2001 and 2002, which gives serious damage to Indomesian aquaculture industry. MMAF has prohibited to bring carp out of Java and to bring into Java from outside. This regulation is applied not only cultured carp but also to naturally captured one.

8) Subjects to be Considered in the Future

323-47 The following issues regarding aquaculture in Indonesia need to be considered:

323-48 - For freshwater aquaculture, since most fish farmers are poor artisanal farmers with limited capital and skill, it is very difficult to sustain the business constantly. Therefore, it is necessary to support for organizing fish farmers and strengthening extension system.

323-49 - Support systems for aquaculture such as extension services, micro credit etc., are limited and not well prepared: the improvement of the systems is needed.

323-50 - Since the market prices of main freshwater aquaculture fish like carp are going down and the production costs such as feed continue to rise, the profit levels continuously decrease. Therefore, it is very important to disseminate proper freshwater aquaculture techniques that enable fish farmers to reduce production costs.

323-51 - In mariculture, seaweed is a major production. But in marine finfish culture, growing-out is a main activity. Though seed production technology of groupers has been gradually secured, but there are still problems such as rearing techniques harmonizing with environment and business operational technology remain in the culture of juvenile stage up to commercial size fish. Therefore, it is necessary to prepare legal framework for utilizing marine water properly for environmentally friendly aquaculture.

323-52 - The governmental objective to expand mariculture is too harsh to be realized. Sufficient analysis on economic, political, or institutional aspects such as market balance, financial supply, etc., as well as technical aspects such as aquaculture management and rearing techniques are needed.

323-53 - Along the trend of decentralization, the national public seed production centers are still handled by the central government and the central government instructs the local governments to establish the local public seed production centers. But there are lots of local centers not running well due to a shortage of financial and human resources. Therefore, it is necessary to review the necessities of those centers and restructure of the systems for operation and maintenance.

323-54 - It is also becoming more vital to build both capability and capacity for fish disease diagnosis and disease prevention system since a lot of freshwater fish, such as carps (in both running water and floating net cage aquaculture systems), had a great mortality in 2001 and 2002 .

(3) Quality Control, Processing and Distribution of Fishery Products

1) Consumption and Utilization of Fishery Products

323-55 In 2002, of the total marine fish production of 4.07 million tons, fresh fish accounted for 2.32 million tons or 57% of the total. Dried or salted fish was 0.91 million tons (22.3%), boiled fish 0.165 million tons (4.05%), traditional fermented fish or fish seasoning 0.037 million tons (0.9%), smoked fish 0.069 million tons (1.70%), frozen fish 0.38 million tons (9.27%), canned fish 0.066 million tons (1.63%) and fish meal 0.048 million tons (1.2%), respectively. In comparison with 1993, fresh fish production has shown a two-fold increase. Some processed products, such as dried or salted fish and frozen fish, have also increased, while other processed fish products declined. Although fresh fish of freshwater species showed a 1.3-fold increase in the last decade, processed fish of freshwater species tended to decrease, except for frozen fish. (National Fishery Statistics 2004)

323-56 In Indonesia, the most popular and favorite fish for consumers is fresh fish, and fresh fish distribution is the main stream. On the other hand, there is also a variety of demands for processed fish due to disadvantages such as tropical climate, preservation technology and the accessibility of commodities.

2) Constraints of Utilization and Distribution of Fishery Products

323-57 The main issues in distribution of fishery products is how to maintain freshness and improve the quality of the distribution systems. Since about 20% of fishery products across the country is not utilized and eventually ends up dumped somewhere due to rottenness and damage, MMAF has targeted a 10% reduction in fish losses by 2005. In order to achieve the above target, it is necessary to improve fish handling while fishing. Furthermore, it is very important to use fish box and sufficient ice during fishing operation hours to keep the freshness of the catch.

323-58 Since a lot of artisanal fishermen cannot use ice, the catch begins to spoil during long operations in hot weather, and catches are rendered with viscous fluid on their surfaces. There are only a few large fishing port facilities where the fishery products are handled in the relatively good condition. Most fish catches are landed on the beach in front of fishing villages or in landing places that lack proper sanitation. The catches are put directly on the ground and roads and sold. In the guideline of 1957, which was prepared by the Ministry of Home Affairs for local governments on auction of fishery products, it is described that fresh fish must be kept in refrigerator for minimum 2 hours before transportationat normal air temperature for more than 4 hours, and also must be iced during the transportation with 1:1 ratio of ice and fish. But it does not seem to be followed in many cases.

323-59 In regulation, fishery products should be sold through "auction" in the wholesale market located at the main fishing port. The main participants in the market are fishermen as sellers, middlemen as buyers, and government officials in local (district) governments as implementers of the "auction." Some districts contract the KUD (rural cooperative units), and it organizes and implements the auction. The KUD is the main body for implementing such auctions in many places on Java Island. The weight of fish caught is measured and sold at auction. The implementers of auction gain commission fees for every dealing. Although commission fees are set at 5% of the deal as per Law No. 64/1957, the actual rates of commission fees differ from district to district, ranging from 5% to 8%. Also, the fees gained by the implementers are distributed at different rates for each category, such as the district general account, district fishery department, social security for fishermen, the KUD, and so forth. Middlemen pay tax according to the amount of their purchasing price. Catches bought by the middlemen are usually carried to the consumption places via freezer-equipped vehicles and/or vehicles with ice. The quality of the catches also depends on how the middlemen handle the catch. There are still quite a few consumption places where ice is not used and the fishery products are sold to end-consumers at normal temperature (under the blazing sun).

323-60 Most artisanal fishermen deals individually with middlemen and remains in the disadvantageous situations in terms of the sale of the fishery products. A lot of fishermen rely on the support of middlemen for equipments and financial resources. This tendency is especially applied to inconveniently remote places where the specific middlemen have already dominate the industry. Because "auction" does not always function well across Indonesia, it is necessary to organize fishermen effectively and provide direction and improvement in order to compete with the middlemen.

3) Issues of Processing and Quality Control of Fishery Products

323-61 About 43% of fishery products are processed and 72% of the processed fishery products are traditional food such as dried fish, fermented seasoning, etc., produced by small-scale food processors. Most small-scale fish processors are household manufacturers and are incapable of establishing quality control systems due to insufficient capital. The Indonesian government would like to prepare a quality control standard that can be applied to these small-scale fish processors. Further, the MMAF is studying the viability of assembling small-scale fish processors from diverse areas in order to provide them with more intensive support.

323-62 The Quality Control Center of the Processed Fishery Products in MMAF implements the training of processing techniques and quality control for the small-scale fish processors, and the JICA's in-country training program has also been implemented.

323-63 The development of processed fishery products for export and the improvement of quality have been set as priorities, and the processing industry is being encouraged to gain international quality control certification (e.g. HACCP). .

4) Subjects to be Considered in the Future

323-64 - The basis of the distribution of fishery products is fresh fish. Enlightenment and education are necessary for artisanal fishermen. Simultaneously, as an incentive for carrying out the above activities, support programs that produce benefits of using the landing site and a favorable environment for the investment are recommended.

323-65 - It is also vital to promote the organizing of fishermen with the above measure.

323-66 - Enlightenment and education are necessary for the distributors, such as the middlemen, retailers, etc., and for the small-scale fish processors in order to improve the quality of fishery products.

323-67 - Artisanal fishermen and small-scale processors engage in simple processing of fishery products, such as dried or salted fish, to be able to improve the preservation and transport them to remote areas. However, their techniques and quality are low level and the price is lower than fresh fish. It is necessary to improve value-added fishery products by improving the processing techniques in order to encourage the expansion of fish consumption, nutritional improvement and raising income of artisanal fishermen, etc.

323-68 - It is essential to improve the distribution system for fishery products by reviewing the role and function of the local wholesale market.

323-69 - Sanitary conditions and environment of fish landing facilities must be improved.

323-70 - By a thorough study of the distribution issues of fishery products traced from fishing operation in the sea to the landing sites to end-consumers, measures for the improvement must be examined in order to dramatically reduce post-harvest loss and thereby improve the quality of fishery products.

(4) Fishermen's Organizations and Credit for Fishermen

323-71 The KUD was legally accredited based on the law of cooperatives, but KUD MINA, which is the cooperative relevant to fishery, is not operating actively in the sector. Fishermen's organizations supported by MMAF are the optional Kelompok and KUB (Kelompok Usaha Bersana), which has its own control management unit. The Ministry partly supports fishermen's groups by cooperating with KUD MINA.

323-72 PEMP (Economic Empowerment of Coastal Community), which is a micro credit program of the DG of Coastal and Small Islands in MMAF, was launched in 2000. As of June 2002, there is at least one KUD MINA, or fishery corporation, which acts as a local financial institution, that provides micro credit to artisanal fishermen in all 146 districts along the coast. They lend financial resources to fishermen (boat owners, employed fishermen), female fishery processors, small-scale fish middlemen, and fish retailers based on group assurance. The loan conditions differ for each financial institution. The budget of this program, funded by the Directorate General of Coastal and Small Islands in MMAF, is prepared for people in fisheries-related fields to compensate for the price increase in gasoline. A total of Rp. 90 billion was allocated with a total of 24,000 beneficiaries in 2002.

323-73 Business of the Directorate of Service for Fishing Business under DG of Capture Fisheries of the MMAF is to establish savings and financing systems for KUB. It provides funds from the budget of the Ministry to KUB to purchase fishing gear, fishing boats, engines, etc., and KUB handles the revolving fund. In 2002, Rp.1.5 million were allocated by the time of the survey implementation. To apply for the loan, KUBs are required to submit a document to the district fisheries administration designating the group's leader, business activities, and members and history of the group, through the group's leader. Provinces and districts' fishery services provide guidance to KUBs. Fishermen or fish farmers who get a loan from KUBs are not required to put up any collateral or guarantee letter.

323-74 During the Assistance Strategy Formulation Study in 2001, a system for interest subsidy for credit from the Bank BRI was planned to commence in 2001 through the budget of the Directorate General of Coastal and Small Islands in MMAF targeting KUB, Kelompok, and individual fishermen and fish farmers. However, this program has not been launched as of yet. Furthermore, the financial grant of Rp.1.4 billion called Dana Bergulir which focuses on 100 districts along the coastline of Indonesia for brackish water aquaculture and mariculture, was planned to be initiated in 2002. However, it has not started yet.

Subjects to be Considered in the Future

325-75 - Instructions for the promotion of formulating fishermen's organizations, activities of the organizations, and the management of finance are indispensable.

325-76 - An increase in the number of local financial institutions, which enable artisanal fishermen to get more financial resources, and variation of the conditions for micro credit loans are necessary.

325-77 - Support for the diversity of measures of livelihood by fishermen's organizations and income growth of capture fishery are important not to depend on middlemen for artisanal fishermen.

CHAPTER 4 ECONOMIC DEVELOPMENT PLANS AND PRESENT CONDITIONS OF INTERNATIONAL COOPERATION FOR THE AGRICULTURE AND FISHRIES SECTOR

4.1 Outlines of the Guidelines of the State Policy and National Development Plan

4.1.1 Guidelines of the State Policy

411-1 The Guidelines of the State Policy (GBHN) is a fundamental national policy formulated every 5 years in accordance with the provision of Article 3 of the Constitution of Indonesia. The GBHN (1999-2004), which was enacted in October 1999, has established the principal direction for agriculture and food security in Indonesia, which states that: developing a food security system that is based on the diversity of food resources, social institutions and local cultures as a part of the effort to ensure the availability of food and nutrients in adequate quantity and quality at affordable prices without disregarding the incomes and welfare of farmers and fishermen.

4.1.2 Ten-Economic Recovery Acceleration Program

412-1 This program was announced as the decree of the Coordinating Minister of Economic Affairs. Among the 10 programs, the third program, "Increase of the Productivity and Welfare of Farmers," is related to agriculture and food security, stating the following five aims (the Ten-Economic Recovery Acceleration Program, Coordinating Minister of Economic Affairs):

1) To conduct seed policy programs in order to boost productivity in the agriculture sector and increase the income of farmers;
2) To promote the mechanization in Indonesian agriculture sector, especially in areas outside of Java, in order to increase productivity;
3) To choose the top 20 agricultural commodities to be intensively developed in order to be competitive in the domestic as well as international markets;
4) To promote processing industries in order to increase the quality and added value of agricultural products, especially post-harvest processing; and
5) To promote the development and use of technology in order to increase agricultural productivity.

412-2 The seventh program, "Utilization of the Natural Resources Endowment," addresses the issue in the fisheries sector. Particular attention should be paid to the third item of the program, which aims at the participation of traditional fishermen in vitalizing the maritime sector through the modernization of fishing equipment. With respect to rural development, the ninth program, "Improvement of Public Welfare in the Rural Areas for Socio-political Stability" has two goals, namely, i) to increase the level of rural wages by improving the terms of trade for agricultural commodities, and ii) to promote infrastructure projects such as tertiary irrigation and rural road projects at the sub-district (Kecamatan) and village (Pedesaan) levels.

4.1.3 National Development Plan 2000-2004 (PROPENAS)

413-1 The PROPENAS, which was formulated in conjunction with the GBHN, has identified the following five points as priority goals:

1) developing the democratic political system and maintaining solidarity as a nation;
2) establishing the rule of law and good governance;
3) accelerating the economic recovery and strengthening the basis for sustainable and fair development based on the public economic system;
4) improving public welfare, improving the quality of religious life and cultural resilience; and
5) promoting rural development.

(1) Development of agriculture, food and water resources

413-2 The sustainable development of agriculture and food is considered indispensable for the development of the national economy. This is stated as one of the major components of the "Fulfillment of Basic Human Needs and Poverty Alleviation Program". This program is one of the seven projects for "Acceleration of the economic recovery and strengthening of the basis for sustainable and fair development based on the public economic system": the other six programs include: i) development of cooperatives and small and medium enterprises, ii) stabilization policy for state finance and economy, iii) reinforcement of economic competitiveness, iv) promotion of investment, v) establishment of public institutions and infrastructures for economic development and vi) sustainable use of natural resources. The program comprises three sub-programs, namely, i) agribusiness development, ii) the improvement of food self-sufficiency, and iii) the development and management of irrigation.

413-3 The sub-program for agribusiness development has five main objectives: i) to improve the yield, quality and output of food crops, horticulture, animal husbandry, fishery, plantation, and forestry; ii) to create job and business opportunities in rural areas; iii) to raise the incomes of people engaged in agriculture, forestry and fishery; iv) to promote the participation of the local people and increase public and private investment for agricultural and rural development; and v) to preserve natural resources and the environment. The sub-program has specified 31 major activities to achieve the above objectives.

413-4 The sub-program for improved food self-reliance is designed to i) increase the diversity and availability of food from cattle, fish, food crops, horticulture, plantations and their value-added products; ii) develop a system to improve food supply, distribution and consumption; iii) develop a competitive food business and prevent monopolies; and iv) improve the stable supply of nutrients and food for the community. The sub-program has specified 27 main activities to achieve the above mentioned objectives.

413-5 The objectives of the sub-program to develop and manage water use and irrigation are: i) the reorganization of duties and roles of the central and regional governments managing irrigation systems; ii) empowerment of community water management organizations to improve water system operations; iii) improved delegation of authority in irrigation network management to communities as the water manager; iv) restructured financing of irrigation networks operations and maintenance, rehabilitation, and improvement; v) greater efficiency of irrigation networks, and enlarged farm lands partly though reclamation of marshlands; vi) protection of irrigated lands from being converted for other uses; vii) increased supply of water for other non agricultural purposes; viii) increased effectiveness and efficiency of the operations, maintenance, and development of the infrastructures to control floods and beach erosion; ix) improved maintenance, repair and upgrading of dams, lakes, and other watershed construction; x) improved management and repair of river flows to maintain and increase their function and use; and xi) increased integration in the use of ground water and surface water, including improved coordination in controlling pollution of ground water and surface water. The sub-program has specified 11 activities to achieve the above objectives.

(2) Fishery Development Program

413-6 This program is part of the sustainable use of natural resources introduced above and aims to i) develop and empower archipelago and coastal communities, ii) improve the rehabilitation and conservation of coastal habitats such as mangrove forests, coral reefs, plains and estuaries in collaboration with the community with the aim of conserving genes, providing raw material, environmental protection and tourism services, iii) improve security and supervision in utilizing coastal and marine resources, including the fishery resources, iv) conduct water, coastal and marine resource management, v) increase the development and utilization of coastal, marine and small islands resources, and vi) increase the efficiency and productivity of coastal and sea fishery resources through the integrated management of various means of utilization in a fair, just and sustainable manner within the frame of increasing local income and community welfare. There are 15 main activities proposed in this program.

(3) Irrigation Development

413-7 Irrigation Development is one component of the "foundation of public institutions and infrastructures (PII) for economic development," including three sub-programs namely, i) the maintenance of PII services, ii) the promotion of the reform and restriction of PII, and iii) the increase in opportunities for people to access PII services.

413-8 The sub-program for the maintenance of PII services deals with i) the foundation of PII that fulfills the minimum requirements for economic recovery, ii) continuation of on-going constructions of PII including those that are pre-operational, iii) re-examination of the needs for new PII in the stages of designing and planning, and iv) the establishment of PII relating to the information and data on the sustainable economic growth. It can be seen that these issues reflect the severe financial conditions of Indonesia.

413-9 The objectives of the sub-program for promoting the reform and restriction of PII are to i) recover the financial feasibility, ii) introduce competition and regulation in the construction sector, iii) efficiently use the funds of the private sector, and iv) make the roles of the government concise and efficient with transparency. The sub-program has announced 6 major activities.

413-10 Lastly, the sub-program for the increase in opportunities for the people to access PII services aims at fulfilling basic needs with the prevalent of the PII services in remote areas. There are 3 major activities in this sub-program.

4.2 Five Year Agriculture Development Plan and Fisheries Development Plan

4.2.1 Five Year Agriculture Development Plan

421-1 Under the GBHN and PROPENAS, the MOA published an agriculture development plan for the period of 2000-2004, with the sub-title "The Significance of Agriculture as an Axis in National Economic Development." The development plan re-appreciated the role of agriculture in the strategy for the economic development of Indonesia. It also strongly emphasized the necessity of policy to support small-scale farmers who have not benefited from past economic development. This means that the future development of the agriculture and fisheries sector should contribute to improving the living standards of small-scale farmers, who make up the majority of people in the country.

421-2 In the plan, the following items were regarded as important roles of agriculture in the next five years:

(1) increase farmers' income and improve their living standards;

(2) increase food production to meet the domestic demand for food and to strengthen national food security;

(3) increase agricultural production for export as well as for the raw materials supply to the processing industry;

(4) increase productivity, employment opportunities and fair business opportunities through agribusiness development; and

(5) develop the rural economy by promoting environment-friendly agribusiness development.

421-3 Under the new Minister of Agriculture, Dr. Bungaran Saragih, who succeeded the former Minister, Dr. M. Prakosa, the MOA has once again published a new agriculture development plan for 2000-2004 in November 2000. The specific character of this development plan is that it emphasizes the role of agribusiness in the national economy, and has the following major objectives:

(1) increase the income and living standards of farmers through agribusiness systems and enterprises;

(2) develop rural economic activities through development of agribusiness systems and competitive, democratic, sustainable and decentralized agribusiness enterprises;

(3) realize a food security system based on regional food resources, institutions, and local cultural diversities; and

(4) create jobs and fair business opportunities through development of agribusiness systems.

421-4 In order to attain the above development objectives, the plan has the following two agricultural development programs:

(1) Agribusiness development program:

- development of an upstream agribusiness subsystem: development of a supporting infrastructure and facilities, and development of the seed industry;
- development of an on-farm agribusiness subsystem: increasing

agricultural productivity, improving product quality, improving production efficiency, and stimulating commodity development based on regional potential;

- development of a processing subsystem: stimulating processing business development, reducing post-harvest losses and stimulating the agribusiness supporting industry;
- development of an agribusiness marketing subsystem: supporting the development of a new domestic and overseas market and improving the domestic food distribution system;
- promotion of agribusiness development: capacity building, and developing an economic institution for agribusiness; and
- development of an agribusiness supporting subsystem: socioeconomic and cultural research, technology research and development, development of agribusiness management, development of an agri-extension system, development of farmers institutions and development of information and data systems.

(2) Food security improvement program:

- increase food supply: increase rice production and reduce food imports;
- promote food diversity: increase the production of non-rice food crops
- improve food-related institutions: develop and strengthen food-related distribution and marketing systems; and
- promote the development of the food processing business and industry.

4.2.2 Five Year Fisheries Development Plan

422-1 The MMAF prepared "The Strategic Plan for Marine and Fishery Development" along with PROPENAS and launched it in May 2002. This plan stands on democratization, decentralization and globalization, and states the following mid-term objectives to undertake the sustainable utilization of all aquatic resources including marine and inland waters.

- Improvement of welfare and living standard of coastal communities
- Raising income of fishermen and aquaculture farmers
- Enlargement of fishery products' consumption for nutritional improvement of Indonesian people
- Environmental protection of marine and inland open waters
- Reviewing the role of ocean for solidarity

422-2 The individual objectives corresponding to the above mid-term objectives at 2004 are as follows:

- annual fishery production shall be 6.63 million tons;
- annual export of fishery products shall be U.S.$3.88 billion;
- annual fish consumption per capita shall be 21.84kg;
- labor force in fisheries sector shall be 6.64 million people;
- offensive fishing regulated in the fishing law shall be reduced and pressure to marine and fishery resources shall be alleviated;
- poverty in coastal areas shall be decreased;
- technology for marine and fishery development shall be improved;
- accurate information-related marine and fishery shall be provided;
- intimate cooperative relationships between the central government and regional autonomies shall be established; and
- five marine and fishery-related regulations shall be revised.

422-3 The plan describes how the guidelines of the individual activities could achieve the objectives described above. In addition, the importance of monitoring and evaluating the activities is also stated.

422-4 Furthermore, the MMAF has just announced the national development strategy and plans for the marine and fisheries sector at the Technical Session of the National Coordination Meeting held from May 30 to June 1, 2002. The statement says that it is important to implement proper fishery resources management and promote mariculture for the sustainable utilization of renewable fishery resources.

422-5 Based on the above statement, “Marine and Fisheries Development Policy and Programs” was formulated in August 2003, and the policy and programs are published in “Indonesian Fisheries 2004” prepared in collaboration with JICA. In this policy and programs, the vision, mission and strategies of marine affair and fisheries development are established, and the short-term programs as well as medium- and long term programs formulated. The short term programs are formulated and implemented, such as 1) prevention of fish stealing by foreign fishermen and control of permission for foreign vessel operation in Indonesian EEZ, 2) development of integrated fisheries and seaweed industries in specific provinces, 3) development of hatchery centers in five provinces, 4) Pilot Projects of small islands development which is sustainable and community based in the particular provinces, 5) implementation of Marine and Coastal Resources Management Project in 15 provinces, 6) development of Vaname Shrimp culture and 7) development of sea weed agro-business system by partnership pattern.

422-6 The medium- and long-term programs are:

(1) Improvement of standard of living for coastal community, fishermen and traditional fisher-folk,
(2) Economic growth improvement of marine and fisheries sector,
(3) Improvement of the environmental quality for marine, coastal, small islands and freshwater area,
(4) Technology and information system development for marine and fisheries resources,
(5) Human resources development for government officials and institutional strengthening,
(6) Harmonization of regional autonomy on marine and fisheries resources management,
(7) Development of international cooperation, and
(8) Improvement of the role of marine as unifying instrument of nation and maritime culture.

4.3 Next Development Plan

4.3.1 National Medium-Term Development Plan (2004-2009)

431-1 Since the coverage of PROPENAS was over at the end of 2004, BAPPENAS formulated the new National Medium-Term Development Plan (RPJM: Rencana Pembangunan Jangka Menengah), covering the period from 2004 to 2005. RPJM stipulates three Missions of i) Secure and Peaceful Indonesia, ii) Fair and Democratic Indonesia and iii) More Prosperous Community, with the following agenda:

<u>Secure and Peaceful Indonesia</u>

- Improvement of safety and comfortable conditions
- More stable Republic of Indonesia based on the Five Principles, 1945 Constitution and Unity in Diversity Principle
- More active role in establishing the global

<u>Fair and Democratic Indonesia</u>

- Improvement of justice and law enforcement
- Guarantee of gender justice for women's role improvement in various development sectors
- Improvement of service toward community by implementing regional autonomy and good regional governance
- Improvement of bureaucracy services toward community
- Democratic implementation of Direct General Election in 2009.

Community Prosperity

- Decrease of poor communities
- Decrease of regional disparity
- Comprehensive improvement of human resources capacity
- Improvement of environmental quality and natural resources management.

431-2 Priority for agriculture and fisheries sector is given to "revitalization of agriculture" and "stable rural development" in the Mission of "Community Prosperity".

4.3.2 Poverty Reduction Strategy Paper (PRSP)

432-1 GOI is preparing the PRSP (SPKN: Strategi Nasional Penangguangan Kemiskinan) under the support of the World Bank. PRSP would be the detailed action plan referring to "Poverty Reduction" in the Mission of Community Prosperity stipulated in RPJM with the target to reduce the below poverty line at 8.2% of the population by 2009. The major policies for poverty reduction are i) Policy for macro economy, ii) Policy for fulfillment of basic human rights, iii) Policy for gender justice and equality, and iv) Support policies for fulfillment of basic human rights. For implementation of the policies, action plans would be prepared.

4.3.3 Development Plan of Relevant Ministries

433-1 Each ministries and government agencies are preparing their five year development plans based on the National Plan. According to the draft plan of Ministry of Agriculture prepared in February 2005, the main pillars are i) Enhancement of national food security, ii) Increase of value-added and improvement of competitiveness of agricultural products, and iii) Farmers prosperity.

433-2 Ministry of Public Work has prepared the Strategic Plan (Renstra: Rencana Strategis), which describes programs and actions in each sub-sectors under the three targets of i) Safe and Peace, ii) Fair and Democracy, and iii) More Prosperous. Programs in the water resources sub-sector are as follows:

Safe and Peace

- Handling of water resources to support border area as the font yard and international entrance
- Handling of water resources in the disaster prone area as well as impact of social unrest
- Handling of water resources in isolated and remote small islands

Fair and Democracy

- Realization of organization efficient and effective in implementation, professional in terms of human resources and applicable good governance
- Improvement of managerial capacity of central and local government business work to provide public work infrastructure
- Establishment of norm, standards, guidelines and manuals for provision of water resources.

More Prosperous

- Improvement of water resource utilization to support food security
- Improvement of water resources management
- Provision of raw water supply for settlement, industry and turism
- Protection of productive areas and settlement centers from water destructive potential.

4.4 Japanese Assistance to the Agriculture and Fisheries Sector in Indonesia

44-1 Indonesia is a very important for Japan both politically and economically, and the two countries have a close interdependent relationship in terms of trade and investment. Indonesia is located in a very important strategic area for Japanese marine transportation, is a supplier of natural resources i.e, oil and gas, and plays an important role to the economic development and stability in Southeast Asia, as a core of ASEAN countries.

44-2 Indonesia has been positioned as one of the most important recipients of Japanese Official Development Assistance (ODA). Until 1981, Indonesia took the largest share of the total value of the Japanese bilateral ODA. After that, Indonesia's share gradually decreased, but still accounts for a large portion and is ranked at about the same level as the People's Republic of China. The following table shows the amount of ODA for the Development Assistance Committee (DAC) countries have extended to Indonesia.

Amount of ODA, extended to Indonesia from DAC Countries

(Unit : million U.S.$)

	1st		2nd		3rd		4th		5th	
1996	Japan	965.5	Ausl.	84.9	Ausr.	64.6	UK.	46.1	Spain	42.4
1997	Japan	496.9	Germ.	115.2	Ausl.	78.6	UK.	57.2	Ausl.	48.7
1998	Japan	828.5	Germ.	212.8	Ausl.	74.1	UK.	40.1	US	36.6
1999	Japan	1605.8	US	207.3	Ausr.	102.4	Ausl.	72.3	Holl.	71.9
2000	Japan	970.1	US	174.2	UK.	33.9	France	21.7	Germ.	6.4

Note: Ausl.: Australia, Germ.: Germany, Ausr.: Austria, UK.: United Kingdom
Source : Japan's ODA Annual Report 2002

44-3 The Japanese assistance to the agriculture and fisheries sector in Indonesian is shown in Table 4.4.1 and summarized in the following tables:

Total Amount of Japanese ODA extended to Indonesia (every 5 years)

(Unit：hundred million Yen)

Fiscal Year	Total Amount of ODA	Agriculture & Fisheries Sector			of which, Fisheries	
		Loan	Grant Aid	Tech. Coop.	Loan	Grant Aid
1966 – 1969	1,093.67	0.00	54.00	*1	0.00	0.00
1970 – 1974	3,886.70	103.68	125.48	*1	28.28	4.20
1975 – 1979	3,789.56	385.80	115.54	*1	82.76	12.00
1980 – 1984	3,627.12	283.78	169.55	*1	3.72	0.00
1985 – 1989	6,589.01	654.34	203.83	*1	0.00	0.00
1990 – 1994	9,177.96	763.20	120.70	91.70	40.09	0.00
1995 – 1999	9,842.94	1,070.02	214.41	94.69	1.94	0.00
2000 – 2001	3,715.58	680.46	32.32	32.36	0.00	6.32
Total	42,885.32	3,941.28	1,035.83	-	156.79	22.52

*1：There is no separate data for the agriculture or fisheries sectors for the period from 1966 to 1989, and 2000 to 2001.

Source：Japan's ODA Annual Report、The annual year book of JICA, 2000

An average yearly amount for every 5 years and a share of the agriculture and fisheries sector

(Unit：hundred million Yen)

(Bracket：Proportion (%) of the agriculture and fisheries sectors out of the whole ODA)

Fiscal Year	Total amount of ODA	Agriculture and Fisheries Sector				of which, Fisheries	
		Loan	Grant Aid	Technical Cooperation	Share in Total ODA	Loan	Grant Aid
1966 – 1970	218.73	00.00 (0%)	10.80 (100%)	*1	4.9%	0.00 (0.0%)	0.00 (0.0%)
1970 – 1974	777.34	20.74 (4%)	25.10 (99%)	*1	5.9%	5.66 (0.8%)	0.84 (3.3%)
1975 – 1979	757.91	77.16 (11%)	23.11 (70%)	*1	13.2%	16.55 (2.3%)	2.40 (7.3%)
1980 – 1984	725.42	56.76 (9%)	33.91 (54%)	*1	12.5%	0.74 (0.1%)	0.00 (0.0%)
1985 – 1989	1,317.80	130.87 (10%)	40.77 (52%)	*1	13.0%	0.00 (0.0%)	0.00 (0.0%)
1990 – 1994	1,835.59	152.64 (14%)	24.14 (30%)	22.95 (21%)	10.9%	8.02 (0.5%)	0.00 (0.0%)
1995 – 1999	1,968.59	214.00 (14%)	25.51 (26%)	18.94 (17%)	14.0%	0.39 (0.0%)	0.00 (0.0%)
2000 – 2001	1,857.79	340.23 (14%)	16.16 (22%)	16.18 (15%)	19.2%	0.00 (0.0%)	3.16 (4.3%)

*1：There is no date for agriculture and fisheries sector alone for the period from 1966 to 1989, and 2000 to 2001.

Source：Japan's ODA Annual Report、The annual year book of JICA, 2000

44-4 As shown in the above table, the total amount of Japanese ODA to Indonesia in the past 36 years amounts to 4.29 trillion yen. From the 1970s to the first half of the 1980s, the amount of ODA was about 75 billion yen. Since then, the GOJ's yearly assistance has been about 100 billion yen, and recently reached upward of 200 billion yen (equivalent to about 10% of the total Japanese ODA). The share of Japanese ODA directed to the agriculture and fisheries sector has changed within the range of 10%-14% with some yearly variations.

44-5 The number of Japanese-assisted projects in the agriculture and fisheries sectors during the 37 years from 1967 to 2003 are shown in Figure 4.4.1 and summarized as follows:

A Number of Japanese funded Projects in the Agriculture and Fisheries Sector in Indonesia (1967～1999)

Types	Agriculture				Live-stock	Fishery	Total
	Production Technique	Infra-structure	Others	Sub- total			
F/S study	9	21	1	31	0	2	33
Grant aid	44	11	13	68	3	4	75
Loan	7	51	4	62	0	11	73
Project type	27	4	4	35	5	6	46
Total	87	87	24	196	8	23	227

Source：Japan's ODA Annual Report and others

44-6 The total number of projects in the agriculture and fisheries sector is 227 with an average of 6 projects per year. The number of projects in the agriculture, livestock, and fishery sub-sectors is 196, 8, and 23, respectively. In the agriculture sub-sector, cooperation has been emphasized in the technical production aspects and agricultural infrastructure, with 87 projects for production technique, 87 agricultural infrastructure projects and 24 other projects.

44-7 Through the improvement of agricultural production techniques, the Japanese cooperation has contributed toward the increase in agricultural productivity as well as farmers' living standards, in particular, the improvement of production techniques for major food crops. Furthermore, the irrigated area has been expanded from 3.6 million ha to 5.03 million ha in the last 10 years under the provision of technical cooperation, loans, and grant aid.

44-8 Given the achievements of the Japanese assistance, it can be assessed that the necessity of cooperation in technical matters for production has decreased, particularly in the area of major food crops. Therefore, it is recommended that, in the future, the GOJ gives more priority to technical assistance such as establishment/strength of institutions like a farmer's organizations institutional building, the training of related officers and farmers, and the operation and maintenance of irrigation facilities.

44-9 The Government of Japan formulated the Country Assistance Program for Indonesia in November 2004, indicating the key development goals for the Japan's ODA. The key goals are 1) Sustainable economic growth under the initiative of private sector", 2) Creation of democratic and impartial society, and 3) Peace building and security. Assistance for agriculture and fisheries sector is categorized as one of the measures to reduce poverty under the "Creation of democratic and impartial society". Since 65% of the poor is located in the rural community and most of them are farmers and fishermen, assistance for agriculture and fisheries sector improves the living standard of farmers and fishermen, therefore, relevant to the key goal of the Japanese Country Assistance Program.

4.5 Activities of Major Development Agencies in the Agriculture and Fisheries Sector in Indonesia

4.5.1 Asian Development Bank (ADB)

451-1 While the ADB's assistance to Indonesia has generally been executed under the ADB's five-year assistance strategy, during the economic crisis in 1997, ADB implemented a three-year emergency operational strategy in close collaboration with other development agencies. When the crisis was almost over in 2000, the ADB prepared the Country Operational Strategy 2001-2005: Indonesia in March 2001. The five major points of this Strategy are: 1) Creating and strengthening basic institutions, 2): Supporting the sustainable recovery and pro-poor growth, 3) Improving regional equity through balanced regional development, 4) Investing in human and social development and enhancing the role of women, and 5) Strengthening environment management.

451-2 Meanwhile, ADB integrated the Country Operation Strategies and Country Assistance Plan into the Country Strategy and Program (CSP) by involving consultation with public officials, development partners in the donor community and civil societies, in order 1) to define the medium-term development strategies, 2) to identify ADB's role focusing on goal of reducing poverty, 3) to be anchored on poverty, economic, social, and sector analysis, and 4) to determine country specific poverty reduction strategy, thematic, and sector priorities. A CSP update is prepared every year taking into account the continued relevance of the CSP, implementation, and its operational program for the next 3 years. The current CSP for 2003-2005 for Indonesia was published in October 2002, and updated for 2004-2006 in September 2003. In this CSP and updates, the broad strategic focus is given to the following points:

1) Improvement of governance and strengthening of the capacity for long-term sustainable development through legal and judicial reform.
2) Meeting the local need through decentralization and identify local development partners that prioritize good governance and poverty reduction.
3) Human development by improving the provision of social services and access by the poor to them, particularly in education and health, and addressing gender equalities, especially local level.
4) Mainstreaming of environment management and encouragement of sustainable use of natural resources.
5) Increase of the potential for poverty-reducing growth through investments in infrastructure, strengthened corporate governance, and expanded private sector development.

451-3 According to the information from an ADB officer, this Strategy aims at a synergistic effect through the convergence of investment in specific areas and/or issues, and changes from a sector-based approach to a cross-sectoral approach. Agriculture is closely related to all the above five points, but the Strategy has been to place higher priority on the three issues of social development, pro-poor areas and environment than on the agriculture sector.

451-4 While ADB's level of assistance to the agriculture sector used to be 40% or more of the total amount of loan, it has now decreased to 15% in 2003 to 2005.

451-5 Based on the improvement in progress of the projects, ADB has increased lending commitment of US$500 million in 2001, US$767 million in 2002, and prospects $600 million to $1.2 billion. The list of ADB's on-going loan projects is shown in Table 4.5.1.

4.5.2 World Bank

452-1 The World Bank released the new Country Assistant Strategy (CAS) for Indonesia during the period of 4 years from 2004 to 2007 in December 2003. The CAS addressed the objectives of strengthening the investment climate and service delivery in the four delivery business platforms corresponding to the community, local, public utilities and national levels The strategies focus contained in the CAS is:

Objective & Core Issues	Longer Term Development Agenda
• Improving Investment Climate for Poverty Reduction	• Maintain macroeconomic stabilities • Stronger and diversified financial sector with equitable access • Supportive environment for competitive private sector • Refurbished infrastructure • Sustainable income creating opportunities for poorer households
• Making Service Delivery Responsive to the Needs of the Poor	• Accelerate attainment of key MDGs in education and health • Better education outcomes for the poor • Improved health outcomes for the poor
• Core Issues: Governance, Accountability, and Corruption	• Development planning made more responsive to constituents • Regulated and transparent system of public financial management • Effective implementation of decentralization • Establishment of a credible and impartial justice sector

452-2 In order to deliver results of the strategic focus, four delivery platform will be used:

1) Community Driven Development Platform: about 25% of lending (about US$200 million per annum) would be allocated to scale up this program.

2) Local Services Platform: about 40% of lending would be allocated to help

create accountability at the district and provincial levels

3) Public Utilities Platform: about 15% of lending would help support investments in good corporate governance and efficiency in water supply and energy.

4) National Lending Platform: about 20% of lending would be allocated to address central problem.

452-3 The basic approach of the World Bank is not specific to the agriculture or fisheries sector, but is focused on rural development for alleviating poverty under the long term agenda of "sustainable income creating opportunities". The approach is shifting from supporting technical matters in agriculture and resources to support for institutional matters including micro-finance. The World Bank has also given priority to the empowerment of farmer's groups in the context of rural development, and supported development plans formulated by farmer's groups that properly address their problems.

452-4 The problem at present is the indefinite role of the central government. From the viewpoint of the efficiency of assistance, the World Bank has stressed direct support to farmer's groups rather than to provide support to governmental agencies.

452-5 The list of World Bank's on-going loan projects is shown in Table 4.5.2.

4.5.3 Food and Agriculture Organization of United Nations (FAO)

453-1 FAO plays an important role as a coordinator of development projects with various donor agencies. Hence, FAO-related projects tend to target important issues that cover the whole area of agricultural development in Indonesia. As of June, 2002, there are three major projects that FAO coordinates, i.e., i) WATSAL, ii) NPFS and iii) the Food Safety Program. WATSAL is a structural adjustment program aimed at the arrangement of policy, institutions, regulations and the assistance for the restructuring organizations; WB and JBIC also support this program. The NPFS is a national program for food security with aims similar to those of WATSAL (refer to Table 4.5.3). The Food Safety Program is concerned with the safety of agricultural products and foods.

4.5.4 Other Donors

454-1 Based on data such as the ADB's Country Operational Strategy, the strategies of major aid agencies can be summarized as follows:

(1) United Nations Development Programme (UNDP) and other UN Agencies

454-2 The strategies of UNDP and other UN agencies have placed emphasis on: 1) community development programs, 2) governance programs, focusing on political governance, 3) environmental management, and 4) assistance in implementing international conventions for the environment, social development and labor.

454-3 Major assistance in the agriculture and fisheries sector is to promote funds for community development.

454-4 With particular attention paid to 1) community development programs introduced above, UNDP has conducted such programs as improvement of housing with the approach of empowerment, the poverty reduction program with micro credits and decentralization programs.

454-5 (2) Major Bilateral Agencies

- The United States Agency for International Development (USAID) has recently revised its country operational strategy for Indonesia. The strategy lays out a priority for the strengthening of institutional capacity which aims at democratic reform, decentralization, encouraging sustainable economic growth and reducing conflicts.

  Assistance for the agriculture and fisheries sector is being carried out under a five-year plan, 2000-2004. Principal assistance is to study, advise on and monitor the food policies and import/export conditions of food. From 2001 on, USAID was planning the implementation of a food policy program in six provinces: Ache, Irian Jaya, East Kalimantan, North Sumatra, West Java and East Java. The food policy program aims at giving guidance and advice for solving the problems identified through implementing the food policy. This program was completed in 2004 (refer to Table 4.5.3).

- The Australian Agency for International Development (AUSAID) has focused on poverty reduction, sustainable economic development, improved governance for democratization and addressing vulnerable groups' needs. The assistance to the agriculture and fisheries sector has been implemented as a part of rural development.

- The German Technical Cooperation (GTZ) places priority on decentralization, including good governance, economic reform, the establishment of market economy and infrastructure, particularly for transportation. The assistance to the agriculture and fisheries sector has been carried out with the aim of capacity-building for local governments and community empowerment.

- As for other bilateral cooperations, in cooperation with the former Central Research Institute of Fishery of the AARD, the MOA (presently the Board of

Research for Marine and Fishery, the MMAF), the Australian Center for International Agricultural research (ACIAR) and the Cooperative Scientific and Industrial Research Organization for Australia (CSIRO) in Australia have implemented many cooperative research projects in the field of aquaculture. These are more like cooperative research mainly for dispatching short-term experts and providing small-scale equipment.

4.6 Other Relevant Organizations

46-1 There are many other organizations that implement projects in the agriculture and fisheries sector. Of these, the JICA Team has consulted with ten organizations in the central government: i) BAPPENAS, ii) SEKNEG, iii) the Ministry of Finance, iv) the MOA, v) the MMAF, vi) the KIMPRASWIL (the Ministry of Public Works, PU at this moment), vii) the State Ministry of Cooperative and Small & Medium Enterprises, viii) the MOIT (the Ministry of Trade, MOT at this moment), ix) the MOHA, and x) the State Ministry of Women Empowerment. The organizational charts of those ministries are shown in Attachment 6. New organization charts (DG level) are also shown in Attachment 7, which are given in the Presidential Regulation No. 10, year 2005 under the new cabinet led by the new president, Mr Susilo Bambang Yudhoyono. BAPPENAS is the coordinating agency for the Steering Committee, which was organized for the implementation of the Support Program, and the other nine are the committee members.

CHAPTER 5 EXAMINATION OF COOPERATION COMPONENTS

5.1 Basic Concept of Japan's Cooperation for the Agriculture and Fisheries Sector in Indonesia

51-1 In recent years, the international environment surrounding Indonesia has been changing rapidly. With the establishment of the international agreement under the WTO regime and the regional agreement under the AFTA, the nation has been strongly requested to abolish its protections on trade and foreign investment, so that Indonesian's domestic market can be tightly linked with the world market as well as regional ones (Agricultural Development Plan, Ministry of Agriculture). Economic globalization has brought with it the tendency of making the role of the government relatively small in the economic development of Indonesia. The role of the market economy is becoming more important, although it is necessary to keep attention to the current national interest in food security.

51-2 On the other hand, recent changes in the domestic situation of Indonesia are also worth noting. As stated by the GBHN (1999-2004) and the PROPENAS, the transparency and democratization of politics and the reinforcement of good governance (as represented by the policy of decentralization) have received the highest priorities as issues to be tackled. In this background, the role of the government is to focus on the enactment and facilitation of laws and regulations for those implementing projects. In this context, the services provided by the government are to be focused concentrically on market institutions, technology development, extensions, finance, and the development of important natural resources (Agricultural Development Plan, Ministry of Agriculture). Moreover, with the decentralization policy commenced in January 2001, the local government in a district or city has come to play an important role in planning and implementing policy in the agriculture and fisheries sector.

51-3 Furthermore, as has been extensively deliberated in international meetings such as those in the Organization for Economic Cooperation and Development (OECD), there is a global movement that regards the alleviation of poverty as the ultimate purpose of development. In line with this movement, Japan has also set this issue as an important target in its medium-term cooperation policy. The GOI also gives priority to the alleviation of poverty in PROPENAS, with the view that the development of rural farming and fishing villages leads to the reduction of the poverty as well as to economic growth (An Approach to Macro Food Policy, BAPPENAS, 2001). In the new national development plan (RPJM) formulated in 2005, this priority is also given.

51-4 Under the circumstances described above, JICA conducted the Assistance Strategy Formulation Strategy in order to examine the direction of Japan's cooperation for the agricultural and fisheries sector in Indonesia. As a result of this study, the basic concept underlying Japan's cooperation was found: Japan supports Indonesia's policy of aiming to develop the agricultural and fisheries sector in line with the decentralization policy and the globalization of markets, putting farmers and fishermen in the center of the strategy for social development and poverty alleviation. Accordingly, using this concept as the base and taking into account the principle of Japan's cooperation (e.g., the ODA charter) and the development issues prioritized by the GOI, two major issues were selected. They are "Stable Food Supply and Improvement of Nutrition" in terms of the macroeconomy and "Raising Income of Farmers and Fishermen and Vitalization of Rural Economy" from the viewpoint of private economy (Assistance Strategy Formulation Strategy Final Report, 2001). In addition, in the Assistance Strategy Formulation Strategy, the five cooperation programs were formulated under the above two development issues, as stated below.

(1) Stable Food Supply and Improvement of Nutrition

51-5 In the agricultural development plan of the GOI, food security is referred to as the situation in which food in the broad sense of the term (i.e., crop harvest, livestock and fish that promote human health through the supply of carbohydrates, proteins, fats, vitamins and minerals) is supplied, from national level to that of individual households, at prices that are affordable for customers everywhere: the food supplied must be sufficient, safe and rich in terms of amount, quality and nutrients. This development issue was then based on the purpose of steadily supplying food to the people through the optimization of the balance between domestic production and imports from the world market under the WTO system, which enables the survival of internationally competitive agriculture and fisheries sectors.

51-6 This issue was classified into two aspects, namely, the aspect of policy and institutional reform and production supporting services, and that of improvement of production infrastructures. The first, with awareness of the small role of the government, focuses on the improvement of institutions to match the policies of the central government with those of local governments under the decentralization policy. The second, on the other hand, addressing the difficulties of new investment in large-scale infrastructures, prioritizes the effective use, operation and maintenance of existing infrastructures. Moreover, as the fisheries sector is to take a different approach from agriculture to development, through the sustainable use of limited resources, the content of cooperation for this sector was discussed separately from the agricultural sector. For the above reasons, the following three programs were considered appropriate for the development issue.

1) Program for Improving the Institution and Production Support System of Agriculture and Fisheries
2) Program for Improving the Function of the Agricultural Infrastructure and Sustainable Operation and Maintenance
3) Program for the Sustainable Utilization of Fishery Resources

(2) Raising the Income of Farmers and Fishermen and the Vitalization of Rural Economy

51-7 The purpose of this development issue is to raise the income of farmers and fishermen to alleviate poverty in rural areas through stimulation of the rural economy. The contents of this development issue were examined from two aspects: i) promotion of economic activity in agricultural and fishing villages; and ii) improvement of economic systems to connect the economic activities of villages to the regional economy. In promoting economic activity in rural areas, it is necessary to support the local industries connected to agriculture and fisheries as well as to provide cooperation that deals directly with poverty. With respect to the economic systems, it is crucial to improve and strengthen the market in developing agribusiness. From these considerations, the following two programs are set for the development issue:

1) Program for Promoting Community-based Economic Activities in Agriculture and Fisheries
2) Program for Improving and Strengthening Markets for Agriculture and Fishery Products

51-8 In each of the above cooperation programs, specific cooperation components are defined, as will be discussed hereinafter (refer to Table 5.1). These components are being examined based on the future subjects identified in Chapter 3 through the sector analysis, and taking into account the following six points set at the beginning of the Support program.

1) As the Action Plan is to be implemented for the three years from 2003 to 2005, the priority is put on projects that are in urgent need of implementation.
2) Taking into account the policy that the GOI restrains new foreign loans because of financial reconstruction, it is necessary to carefully examine economic and financial sustainability of new investment in large-scale infrastructure development.
3) From the viewpoint of the effective use of ODA, issues that have the

possibility of competing with the private sector (e.g. estate crop production and export promotion) will be excluded from the Action Plan.

4) Cooperation in the institutional aspect is of great importance, so that the support for production techniques and infrastructures that Japan has provided so far will be effectively utilized.
5) It is indispensable to prioritize cooperation components from various options and attain the effective combination of the financial and technical cooperations in order to maximize the potential effects of the assistance with Japan's limited resources for ODA.
6) To avoid the overlap of cooperation with other donors, it is necessary to find appropriate contents and target areas for the assistance.

51-9 It is necessary to support the governmental and financial reforms, including decentralization, that the GOI has been promoting since 2001. To ensure the sustainability of the effects of cooperation supports, however, an effective institutional framework for the central and regional government systems needs to be established. This institutional framework is essential to disseminate the benefits of the cooperation to farmers and fishermen. With this institutional basis, projects for model development focusing on the participatory approach will be examined.

51-10 The reason of excluding the export promotion in formulating the cooperation components is that there was a possibility of causing the competition with a private sector from the products since many of export farm products of Indonesia are related to the estate such as palm oil and rubber. On the other hand, the export of products produced by small-scale farmers and fishermen is different from that of products in estate sector, and the promotion of such export is thought as cooperation that aims to raise their income.

5.2 Examination of Cooperation Components

5.2.1 Program for Improving the Institution and Production Support System of Agriculture and Fishery

521-1 In order to realize Stable Food Supply and Improvement of Nutrition, the issues to be tackled encompass not only the improvement of production technique, on which foreign donors, including Japan, have focused, but also the integrated function of various policies and institutions, including macroeconomic policy for finance and financial systems, human resource development, credit schemes, agricultural extension, and capacity building for farmers' organizations. As already mentioned, the globalization in the international economy has been expanding, and promotion of a decentralization policy in Indonesia has been taking place. As a result, of the situation surrounding the planning and implementation of agricultural policy has been changing greatly. It is thus of critical importance to establish consistent policy and institutions in order to link macro policies (e.g. policies for land systems and stable domestic production, and tariffs and subsidies to enable balance with imports) with the agricultural development plans formulated and conducted by local governments at farm level.

521-2 At present, it is generally recognized that some progress has been made in the production technique for food crops in Indonesia (Agricultural Development Plan, Ministry of Agriculture). As Japan has rendered assistance to this area for many years and attained this progress to some extent, the next step required is to utilize the effects of this support. In this regard, too, the highest priority should be given to the improvement of agricultural policy and institutions.

521-3 In light of ODA, the sectors that have relatively greater needs for production support are those of horticulture and livestock rather than those of estate crops, in which the private sector is engaged. Taking into account 1) the fact that the protein is the second most important nutrient (following calories) for the improvement of human nutrition and 2) the necessity for raising the income of small-scale farmers in order to alleviate poverty, development of the livestock sector is an urgent requirement. Considering this reason and the above information, the following two components have been set with respect to the cooperation program.

1) Support for policy and institutional system in line with the decentralization policy
2) Development of livestock industry utilizing local resources

(1) Support for Policy and Institutional System in Line with the Decentralization Policy

521-4 As already expressed, the integrated function of macro policies (e.g. tariff and subsidy) and the policies for particular issues such as land use, agricultural extension/education and training, agricultural credit, and farmers' organization is necessary for Stable Food Supply and Improvement of Nutrients. In addition, with the decentralization policy, the approach to development has changed from the central government-led type to that led by local governments, in order to respond to regional diversity. It is thus prerequisite to clarify the roles of the central and local governments and develop policy and institutions in line with each of these roles. Based on this perspective, this cooperation component deals with support for the establishment of policy and institutions, which makes the connection at farm level between the effects of macro policies implemented by the central government and those of individual projects carried out by local governments. In particular, to make the best use of the effects of cooperation that Japan has rendered so far, priority will be given to agricultural extension/training, and strengthening farmers' organization.

521-5 To be more specific, in the field of agricultural extension, it is necessary to provide the means for local governments to judge the rationality and feasibility of plans (e.g., the preparation of guidelines point the way for the appropriate implementation of agricultural extension service in the region). As regards training and education, the extension office (BPP) in the sub-district (Kecamatan) has the function to provide various training programs for farmers. It is generally pointed out that the functions of the BPP are limited due to the insufficient number of extension officers and the lack of budget. Moreover, as the decentralization policy allows local governments to conduct policies unique to them, some districts have halted the BPP activities or admitted them only with limited functions. The functions and activities of some of BPPs have been kept in check due to decentralization, and so there is rising concern that farmers are being prevented from receiving education and training programs.

521-6 Strengthening farmers' organizations is considered to be a significant matter: farmers as members of a group may well enjoy more efficient production with greater benefits than farmers engaged in production individually. In order to create incentives for members to continue to engage in cooperative activities, the efficient implementation of production activities, and cooperative purchase and selling should be considered. Not only in the aspect of production activities but also in the aspects of developing agribusiness and raising farmers' income, the development of "high quality" farmers' organizations is critically important, as this will be the realization of independent, democratic management through the empowerment of farmers. For capacity building, then, it is necessary to provide suggestions for promoting merger and cooperation, which will bring about merits of scale, and to strengthen institutions and policies, including the implementation of training programs and preparation of guidelines regarding the business activities of cooperatives and their financial management. It is also indispensable to elucidate the need for and merits of reinforcing farmers' organizations with the preparation of regulations aimed at the democratic management.

521-7 Based on these points, it can be considered that priority in the component of "Support for Policy and Various Institutional Systems in line with the

Decentralization Policy" must be given to support for the establishment of policies and institutions for stable food supply and improvement of nutrition including a) the improvement of extension and training systems and b) strengthening farmers' organizations such as cooperatives.

(2) Development of Livestock Industry Utilizing Local Resources

521-8 In Indonesia, the rise in people's incomes, the diversification of diet and the growth of the population have led to an increase in demand not only for vegetable protein but also for animal protein (i.e., demand for meat, eggs and dairy products). Although the demand for animal products dropped off temporarily during the period of the Asian economic crisis, while the per-capita consumption in 2002 of meat, egg, and milk is estimated that they increased to 5.75 kg (129%), 4.04 kg (149%), and 6.5 kg (190%). These figures are expected to increase further in the near future.

521-9 The development of the livestock sector in Indonesia is based on two purposes: a) diversification of farm activities and improvement of the income level of farmers and b) the stable and safe supply of livestock products to the nation.

521-10 It is observed that, in the livestock sector, there are two major production systems, namely, local-resources-based, small-scale farms and import-dependent, larger-scale farms including large-scale commercial enterprises.

521-11 Import-dependent, commercial-oriented, and large-scale management such as that of commercial poultry and the feed-lot industry of beef cattle may well play a part in industrial development and the improvement of self-sufficiency. However, during the period of the Asian economic crisis, this sector fell into a critical situation due to the rapid increase in the prices of imported feed material and feed steers. Accordingly, this sector should be excluded from being a target of ODA, as it is to be promoted by the private sector.

521-12 In order to meet the increasing demand, and increase the income of farmers while reducing poverty, the utmost priority must be given to local-resources-based, small-scale farms rather than large-scale ones. Moreover, in terms of the development of agribusiness and regional economies, too, support for the small-scale farms is critically required.

521-13 In particular, the promotion of the small livestock farms that are compatible with the production of food crops is of crucial importance for rural communities.

5.2.2 Program for Improving the Function of the Agricultural Infrastructure and Sustainable Operation and Maintenance

522-1 The irrigation area has been expanded under the initiative of the government in order to attain foodstuff self-sufficiency. However, trade liberalization has given rise to serious price competition between local and imported rice. Further, other economic sectors are showing signs of economic recovery from the currency crisis, and this recovery has been improving the people's purchasing power. Under such circumstances, the public focus on food policy seems to be shifting to stable food supply rather than food self-sufficiency. In this regard, it is necessary to carefully and seriously examine the irrigation development, taking into account the food policy based on the future supply and demand of food.

522-2 Regarding the existing irrigation schemes, there are various subjects to be focused upon. They are: the deterioration of irrigation facilities, the malfunction of irrigation facilities due to poor O&M caused by the unsuccessful hand-over to the WUA for the reduction of budgetary burden, the transfer of irrigated land to other land use on the populous Java Island, and the abandoned irrigated area on the outer islands.

522-3 Taking the above situation into consideration, the priority for Japanese ODA is given to institutional development for O&M of irrigation facilities, which had been expanded under assistance by donors including Japan. In this regard, the following three components have been selected for the irrigation sector:

1) Support for participation of WUA in irrigation O&M and rehabilitation.
2) Strengthening of WUAs and local governments for the above-mentioned purpose.
3) Rehabilitation of existing facilities and development of small-scale irrigation facilities for the above-mentioned purpose.

For irrigation development and rehabilitation in the medium or larger scale irrigation schemes, their O&M will be taken into consideration as an essential component.

522-4 In order to formulate policy for comprehensive water resource management including the institutional framework, the GOI is accepting policy assistance from the World Bank and JBIC under WATSAL. In the same context, the following two subjects have been raised in close relation to the above programs:

1) Formulation of comprehensive plan for land utilization and enactment of related administrative instruction
2) Countermeasures against abandonment of irrigation systems on outer islands.

The GOI will be requested to present clear policies to address the above two subjects and bring about their implementation.

522-5 Under the circumstances surrounding the agriculture, large-scale irrigation development will be carefully developed, taking into account an increase of financial burden.

(1) Support for Participation of WUAs in Irrigation O&M and Rehabilitation

522-6 The government had been implementing irrigation development, and the irrigation area reached 5.03 million ha in 1999, corresponding to 62% of 8.11 million ha total paddy field area. The irrigation area thus developed has contributed to attaining a stable supply of food. On the other hand, O&M and rehabilitation are fully dependent on the government budget, and this has become a financial burden on the government. Under such circumstances, the government issued the Irrigation O&M Policy in 1987 to hand over the O&M of irrigation facilities to WUAs and local government, in order to bring about sustainable O&M and efficient water supply through charging irrigation service fees to water users. Meanwhile, taking the present situation of farmers, O&M and rehabilitation responsibility for the main irrigation facilities remains in the hand of government along with facilitating the farmers' participation through WUA empowerment. WUA is responsible for O&M and rehabilitation for tertiary system and is to be empowered.

522-7 Since the late 1980s, donors have supported the implementation of the above policies for the institutional development for O&M, the formation of WUAs, the collection of irrigation service fees, and the handing over of O&M at project basis. In spite of such efforts, the results have been far worse than expected. In order to improve the situation, the government has since 1999 started to strengthen the "institutional framework for O&M" with the aim of "improving irrigation management policy, institution, and regulation", under the support of the WATSAL by the World Bank. The local government mechanism, which is in the process of decentralization, has been undergoing reorganization for the rehabilitation and O&M of irrigation facilities.

522-8 In this regard, along with progress in strengthening the above institutional framework, it is necessary to support the participation of WUA in irrigation O&M and rehabilitation to WUAs.

(2) Strengthening of WUAs and Local Governments for the above-mentioned Purpose

522-9 High economic growth and population increase have brought about an expansion in water demand in urban and industrial sectors. This has prompted the government to shift the focus on water resources from being a natural resource regarded as a social asset to being an economic resource. Since irrigation uses the largest volume of water, accounting for more than 80% of total water consumption, the efficient use of water and transparent operation of facilities are required more than ever in the irrigation sector. And the capacity building of local government is required for strengthening of WUAs.

522-10 Appropriate water management is not simple and is widely varied due to the diversity of natural conditions as well as social, cultural, and ethnic ones. The agriculture sector has been highly protected and subsidized for a long period, and farmers have acquired the rather stereotypical mindset that "the government will always supply irrigation water without participation in O&M". This mindset does not enable efficient use of water and appropriate O&M of irrigation facilities through the establishment of autonomous WUAs. This situation has led to excessive consumption of irrigation water in upstream areas and forced downstream areas into difficult water-utilization situations. Accordingly, the designed irrigation command area cannot be fully irrigated.

522-11 In order to improve such a situation, it is necessary to organize WUA, suitable for local conditions, and capable of managing the organization in a democratic and sustainable manner as well as managing the finances with transparency and soundness, through changing the mindset of farmers so that they become bearers of O&M responsibility.

(3) Rehabilitation of Existing Facilities and Development of Small-scale Irrigation Facilities for the Above-mentioned Purpose

522-12 After the construction of irrigation schemes, facilities and structures gradually deteriorate, and trouble including canal sedimentation and structural damage arises, even under the normal O&M conditions. Furthermore, lack of proper O&M of irrigation facilities accelerates deterioration of the functions of the schemes.

522-13 Besides, due to the various reasons, irrigation water is not fully supplied to command area in many irrigation schemes. In some schemes, the size of the designated irrigation area is beyond the scope of the available water resources, due to strong requests from the farmers and local leaders to expand the command area. In other cases, there has been a reduction in water resources due to the degradation of watersheds. Low canal density at the on-farm level is also one of the main causes for decreases in the efficiency of distribution of irrigation water to the fields.

522-14 The above situation creates a vicious cycle of inadequate O&M and low collection of irrigation service fees in irrigation management. In such a situation, WUAs are unable to conduct O&M in a sustainable and efficient manner. Therefore, countermeasures are required to remove this vicious cycle before the handing over of irrigation management and O&M to WUAs. Countermeasures include revision of irrigation area to an appropriate size, small-scale water resource development, selection of structure design manageable for farmers, and the rehabilitation of deteriorated facilities in order to enable WUAs to participate in O&M of the irrigation schemes in efficient and effective manner.

5.2.3 Program for the Sustainable Utilization of Fishery Resources

523-1 Fishery products play an important role in the nutritional improvement of the people and stable supply of food, since per capita consumption of fishery products in 2002 was about 20kg, which accounts for 50% of the animal protein intake. Fishery resources are the natural resources distributed in the third largest marine area in the world and the vast inland water area, and the products are items for self-supply in Indonesia. Furthermore, in such remote areas as the eastern part and the small island area of Indonesia where no specific useful natural resources are available, fishery plays an important role in creating job opportunities as well as generating cash income for fishermen and related people.

523-2 The development subjects, identified in Chapter 3, are broadly categorized into two major aspects, namely, resources management for sustainable fisheries promotion, and the supply of fishery products to the people at affordable low prices. Each aspect of management and supply contains both capture fishery and aquaculture.

523-3 Taking the above-mentioned circumstances into account, the following components are conceivable for the cooperation program.

1) Cooperation in establishing the resource management scheme for the sustainable development of the fisheries and fisheries communities
2) Promotion of coastal and inland capture fishery and fish culture for expansion of local consumption of fishery products at low prices

(1) Cooperation in establishing the resource management scheme for the sustainable development of the fisheries and fisheries communities

523-4 Marine capture fishery generates three quarters (3/4) of total fishery production. The product from marine capture fishery is regarded as animal protein resources with the most potential for Indonesia in the future. The potential resource is estimated at about 5 million tons per annum. The utilization of fishery resources is evaluated to be still low in the eastern part on the one hand, but already over-exploited in Western part of Indonesia on the other. As for fishing grounds, over-exploitation can be seen in near-shore areas and bays. However, low utilization of fishery resources is common in offshore areas. Illegal fishing such as fishing by use of dynamite or poison is widely observed in several locations of Indonesia, and there are lots of violent fishing practices being conducted by foreign vessels in IEEZ. Illegal fishing brings about a decrease in coastal fishery resources and degradation of environment. Marine capture fishery production decreased in 1999 from the previous year; no such decrease in production has been recorded in the past. These situations may indicate a need to revise the policy of utilization of marine and fishery resources.

523-5 In order to utilize the fishery resources in a sustainable way, it is required to formulate the total resource management scheme among the central and local governments and fisheries communities. Based upon the total resource management scheme, each responsible management body should decide the individual activities of fishery resources management suitable to the particular fishing situation. Coastal fishermen and villagers are required to understand and participate in the management and utilization of fishery resources, and introduction of a community-based resources management that involves such groups as fishermen, fish distributors, and others is expected. Hence, assistance is necessary to establish policies and regulations for fishery resources management and control based on decentralization, to prepare guidelines for deciding measures on resources management corresponding to the particular regional situation, and to train leading personnel such as administrators in provinces and districts. In this regard, it is required to prepare policies, regulations and support schemes for the formulation of the resource management scheme, in cooperation with central/local governments under the decentralization.

523-6 Extension of sustainable and environmentally harmonized aquaculture technology is an important strategy in Indonesia. In order to support such extension, aquaculture technology is firstly to be transferred to the national aquaculture development center. Technology is then to be disseminated to aquaculture farmers through provincial or district fishery services, which are to be restructured under coordination of the national center. In order to promote the practice of aquaculture in open waters, assistance is essential to establish policies and institutions relating to fishing license, environmental protection and co-surviving with region from the viewpoint of sustainability.

(2) Promotion of Coastal and Inland Capture Fisheries and Fish Culture for Expansion of Local Consumption of Fishery Products at Low Prices

523-7 The promotion of capture fishery and aquaculture with high development potential such as coastal fishery resources in eastern and small island areas of Indonesia where there are limited development resources other than fisheries, and freshwater aquaculture in undeveloped areas apart from for Java island, is necessary to increase local fish consumption and the intake of protein by supplying cheap fishery products. In addition, it is important to decrease production losses in natural resources and to utilize them efficiently from the viewpoint of the promotion of the protein intake necessary for nutritional improvement and the sustainable utilization of fishery resources. To reduce post-harvest losses, which are almost equivalent to 20% of the total fishery production at present, it is necessary for artisanal fishermen to improve the handling of post-harvest fish at production sites from fishing grounds to wholesale markets, in order to preserve their freshness and sanitation. Moreover, from an aspect of poverty alleviation, the promotion of capture fishery and aquaculture shall contribute directly to increasing the income of fishermen.

5.2.4 Program for Promoting Community-based Economic Activities in Agriculture and Fisheries

524-1 This program aims to raise the income of farmers and fishermen through the vitalization of their villages, in order to alleviate poverty. Although there are various activities relating to agriculture and fisheries, the program will focus on the development of processing to add value to products, as well as on the creation of job opportunities, as the other aspects such as farm management and fishing have already been promoted by the GOI. In the analysis conducted in Section 3.1.10, Agribusiness, it was found that the issues to be tackled are 1) the construction of information network systems with regard to the partners, markets, techniques, funds, and materials for processing, 2) tax concessions, 3) the preparation of credit schemes for small and medium-sized enterprises, 4) the improvement and preparation of micro credits for small-scale farmers and fishermen, and 5) the development of human resources. These issues are also pointed out in the other Sub-sections of 3.2.3 (4) and so on.

524-2 Based on these findings, with the aim of promoting local processing industries for agricultural and fishery products, the program examines the recommendations for 1) the institutional framework for creation of investment incentives (e.g. tax concessions and credit schemes for small and medium-sized enterprises) 2) improvement and construction of information systems and 3) encouragement and strengthening of farmers' and fishermen's organizations to promote the local processing industry for agricultural and fishery products. Then, in order to promote income-generating activities for poor people, it examines the recommendations and cooperation for the promotion of credit systems and for establishing and strengthening mutual –aid systems for farmers.

524-3 For these recommendations and "model" actions, it is necessary to consider the effectiveness of the participatory approach in rural development, as discovered through the results of the previous cooperations of JICA for South and Southeastern Sulawesi, and also to take into account the financial decentralization prevailing in Indonesia.

524-4 Incidentally, although the previous study of the Assistance Strategy Formulation Strategy pointed out the needs for the improvement of the school-attendance rates of middle-class farmers, fishermen and extension workers at agricultural junior high and high schools for developing human resources, these issues may well be out of the scope of the Action Plan, as they are to be addressed in the middle and long terms.

(1) Encouragement of Local Processing Industries for Agricultural and Fishery products

524-5 This component will consider the following issues as the cooperation of Japan

1) Recommendation for institutional framework for creation of incentives for investments
2) Recommendation for Information System
3) Encouragement and strengthening of farmers' and fishermen's organizations to promote the local processing industries for agricultural and fishery products.
4) Improvement of necessary infrastructures such as small-scale facilities for the above-mentioned purpose

1) Recommendation for the Institutional Framework for Creation of Incentives for Investments

524-6 In order to develop new local industries, a prerequisite is to prepare credit for small and medium-sized enterprises, which require some initial investment funds. Although the Unit Desa of BRI, the national bank of Indonesia, provides micro credit to rural enterprises, many small and medium-sized enterprises have received little benefit due to the insufficient number of credit opportunities. This situation forces them to depend on credit from other sources with a higher rate of interest.

524-7 Moreover, despite the need for tax concessions to promote the processing industries, such policies or institutional systems have been disorganized. It is often claimed that the application procedure to receive tax concessions is complex and time-consuming. Hence, in conceiving of policies and institutions, it is desirable to construct an efficient system.

524-8 Therefore, in vitalizing rural economy, support for the establishment of institutional concessions as an investment incentive should be carefully examined, in order to develop agribusiness centering on local industries.

2) Recommendation for the Information System

524-9 In order to promote investment as described above, it is also necessary to prepare the information system, including the construction of the information network with regard to the partners, markets, techniques, funds, and materials for processing.

3) Encouragement and Strengthening of Farmers' and Fishermen's Organizations to Promote the Local Processing Industries for Agricultural and Fishery Products.

524-10 The main business organizations in rural areas are KUDs. Essentially, KUDs are groups that are voluntarily organized by cooperative members. They are developed with government support, and some KUDs have played important roles, though it is difficult to say that they are profit organizations. However, due to heavy dependence on the government and to the poverty relating to the low prices and low-level production of agricultural products, many KUDs function badly, due to a lack of stable, independent management and positive participation by farmers.

524-11 Presidential Decree No.18 announced in 1998 abolished the regulation that restricts the establishment of KUDs to no more than one unit in one sub-district. On its abolition, "new agricultural cooperatives"（Koptan: Koperasi Tani）have increasingly been organized. But there are many problems with them, as they have just come to the new stage of development.

524-12 In order to develop agribusiness, the MOA and MMAF have conducted micro-projects such as micro credit and community-based projects for groups voluntarily organized by farmers and fishermen (e.g., Klonpokku). Fundamental education to foster an awareness of participation, to cultivate a sense of identity and responsibility, and son on is required, therefore it may take a long time until they are functioning well as business units. To promote this, technical support on encouragement and strengthening of farmers' and fishermen's organizations is indispensable.

4) Improvement of Necessary Infrastructures such as Small-scale Facilities for the Above-mentioned Purpose

524-13 Improvement of necessary infrastructures such as small-scale facilities for the above-mentioned purpose will be examined.

(2) Support for Income Generation by Poor people: Promotion of Micro Credit Schemes and Recommendation and Support for Promoting and Strengthening Mutual-help Organizations for Farmers and Fishermen

524-14 The businesses of most farmers and fishermen are small in scale, and generally lack the channels and financial resources that are necessary to manage all activities from production through to marketing. Therefore, it is difficult for small farmers to obtain farm inputs such as high quality seeds, fertilizers, and agrochemicals, at the appropriate time and in the appropriate quantity.

524-15 Due to the above reasons, there are cases in which farmers tend to depend on support from private business people such as middlemen and rice millers, in order to procure farm inputs to be required. As a result, it is highly likely that the farmers will end up selling their products at the low prices requested by the private business people. For fishermen, too, it is difficult to individually procure production tools, such as fishing boats, nets, engines, as well as the materials to preserve the freshness of fish, such as ice and container boxes. In particular, those living in remote areas far from markets tend to rely on middlemen or fishing companies for the material and financial aspects, and in return are often required to sell their catches at unfair prices. Also, in the case of small fish farmers, the difficulty to procure high quality feed and fries results in a low incidence of survival and in slow growth, leading to their management falling into critical condition.

524-16 In order to change this situation, the GOI have been implementing various micro credit programs at low interest rates. In general, however, those micro credit schemes tend to limit the credit purposes, periods and amounts, and often work as constraints against those that use them. Moreover, the group-guarantee system adopted in these programs is faced with financial management problems on the borrowers' side, such as cooperatives etc., with a lack of understanding on credit system among their staff as well as the members that leads to unclear handling of the credit repayment process and money usage.

524-17 Addressing this problem requires assistance for small farmers and fishermen so that they may have sufficient capability to properly utilize these micro credit programs. On that account, it is considered important to allocate a sufficient time period for third party supporters, such as NGOs, to enable facilitation of farmers and fishermen actively taking the initiative in managing their groups, together with the provision of practical training courses areas such as organizational and financial management, etc.

5.2.5 Program for Improving and Strengthening Markets for Agricultural and Fishery Products

525-1 As a result of the sector analysis in chapter 3, the improvement in the marketing of agricultural and fishery products have been summarized into the following five points.

(i) To realize hygienic and efficient market management

(ii) To establish an effective legal framework governing the market for realization of transparent trade and fair price formation

(iii) To facilitate access of farmers/fishermen to market information

(iv) To realize collective marketing by farmers' organizations

(v) To clarify and improve the situation of post-harvest losses

525-2 Out of five points above, item (iv) is to be studied together with farmers' organization in the Program for Improvement of Institutions and Production in Agriculture. Study of the item (v) is to be considered on a medium-/ long-term basis, since the target ranges vary widely from farms through to the market and distribution. Items (i),(ii) and (iii) are to be taken up for study in this program, focusing on the market.

525-3 Accordingly, the components under this program are to be as follows:

1) Recommendation on the improvement of market institutions for agricultural and fisheries products
2) Recommendation on the establishment of basic market information systems for agricultural and fisheries products

(1) Recommendation on the Improvement of Market Institutions for Agricultural and Fisheries Products

525-4 Existing wholesale markets of agricultural and fishery products are generally superannuated, congested and not kept hygienic. In addition to this, there is the daily occurrence of dead stock, and increasing post-harvest losses. No license system for wholesalers, no obligation to report dealing data, face-to-face negotiations and incomplete quality standards are constraints on transparent trade and fair price formation. The wholesale markets are centered on distribution between producers and consumers, aiming at the smooth and stable supply of commodities (mostly perishables) through fair and prompt transactions. Improvement of the wholesale market, therefore, is imperative. The effective legal framework governing the market needs to be thoroughly reviewed and improved. The produce collection system, based on collective marketing by farmers' organizations or the equivalent, is an important prerequisite for efficient operation of the markets.

(2) Recommendation on the Establishment of Basic Market Information Systems for Agricultural and Fisheries Products

525-5 The market, positioned in between producers (farmers/fishermen) and consumers (product users), should play the important role of information exchange between the two. However, this is not sufficiently in place as of yet. Farmers have difficulties accessing market information. Price data by commodity are regularly collected by central and regional government officials, and released publicly through the media. However, this information is not fully utilized due to the drawbacks in the quantity, quality, promptness and practicality of the information. Improvement needs to be carried out to establish effective and wide-ranged market information systems for revitalization of the market. Access to information required for promotion of agribusiness should also be facilitated.

5.3 Action Plan

53-1 Based on the framework (the development issues, the cooperation programs, and the cooperation components) formulated through the discussion mentioned above, the Action Plan is formulated, which indicates the Japanese assistance concretely in the form of the list of the individual projects (refer to the Final Report "Action Plan"). And the relationship between the framework and the individual projects under the Action Plan is described in the hierarchy tree for cooperation program in the Final Report "Action Plan".

Tables

Table 2.1.1 Gross Domestic Product by Industrial Origin, 1996-2003 (1/2, at Constant 1993 Market Prices)

Unit: Billion Rupiah

Industrial Origin	1996		1997		1998		1999		2000		2001		2002*)		2003**)	
1. Agriculture, Livestock, Forestry and Fishery	**63,830**	**15.4%**	**64,470**	**14.9%**	**63,610**	**16.9%**	**64,990**	**17.1%**	**66,210**	**16.6%**	**67,320**	**16.3%**	**68,670**	**16.1%**	**70,370**	**15.8%**
a. Farm Food Crops	33,660	8.1%	32,680	7.5%	33,350	8.9%	34,020	9.0%	34,540	8.7%	34,260	8.3%	34,530	8.1%	35,070	7.9%
b. Non-food Crops	10,350	2.5%	10,500	2.4%	10,500	2.8%	10,700	2.8%	10,720	2.7%	11,330	2.8%	11,810	2.8%	12,420	2.8%
c. Livestock and Products	7,130	1.7%	7,480	1.7%	6,440	1.7%	6,840	1.8%	7,060	1.8%	7,310	1.8%	7,490	1.8%	7,750	1.7%
d. Forestry	6,440	1.6%	7,190	1.7%	6,580	1.7%	6,290	1.7%	6,390	1.6%	6,560	1.6%	6,680	1.6%	6,660	1.5%
e. Fishery	6,250	1.5%	6,610	1.5%	6,740	1.8%	7,150	1.9%	7,500	1.9%	7,860	1.9%	8,160	1.9%	8,480	1.9%
2. Mining and Quarrying	**37,740**	**9.1%**	**38,540**	**8.9%**	**37,470**	**10.0%**	**36,870**	**9.7%**	**38,900**	**9.8%**	**39,400**	**9.6%**	**40,400**	**9.5%**	**40,590**	**9.1%**
a. Crude Petroleum and Natural Gas	24,060	5.8%	23,920	5.5%	23,340	6.2%	22,140	5.8%	22,660	5.7%	21,540	5.2%	21,080	4.9%	20,360	4.6%
b. Non-Oil and Gas Mining	7,270	1.8%	7,650	1.8%	9,680	2.6%	10,360	2.7%	11,620	2.9%	13,030	3.2%	14,190	3.3%	14,580	3.3%
c. Quarrying	6,410	1.5%	6,970	1.6%	4,460	1.2%	4,370	1.2%	4,620	1.2%	4,840	1.2%	5,140	1.2%	5,650	1.3%
3. Manufacturing Industry	**102,260**	**24.7%**	**107,630**	**24.8%**	**95,320**	**25.3%**	**99,060**	**26.1%**	**104,990**	**26.4%**	**108,270**	**26.3%**	**111,980**	**26.2%**	**115,900**	**26.1%**
a. Oil and Gas Manufacturing	10,860	2.6%	10,650	2.5%	11,040	2.9%	11,800	3.1%	11,600	2.9%	11,200	2.7%	11,330	2.7%	11,400	2.6%
b. Non Oil-Gas Manufacturing	91,400	22.1%	96,980	22.4%	84,280	22.4%	87,260	23.0%	93,390	23.5%	97,080	23.6%	100,650	23.6%	104,500	23.5%
4. Electricity, Gas and Water Supply	**4,880**	**1.2%**	**5,480**	**1.3%**	**5,650**	**1.5%**	**6,110**	**1.6%**	**6,570**	**1.7%**	**7,110**	**1.7%**	**7,540**	**1.8%**	**8,050**	**1.8%**
a. Electricity	3,980	1.0%	4,460	1.0%	4,610	1.2%	5,010	1.3%	5,390	1.4%	5,820	1.4%	6,120	1.4%	6,530	1.5%
b. Gas	220	0.1%	270	0.1%	230	0.1%	230	0.1%	270	0.1%	300	0.1%	340	0.1%	370	0.1%
c. Water Supply	670	0.2%	750	0.2%	810	0.2%	870	0.2%	910	0.2%	1,000	0.2%	1,080	0.3%	1,150	0.3%
5. Construction	**32,920**	**8.0%**	**35,350**	**8.2%**	**22,470**	**6.0%**	**22,040**	**5.8%**	**23,280**	**5.8%**	**24,310**	**5.9%**	**25,490**	**6.0%**	**27,200**	**6.1%**
6. Trade, Hotel and Restaurant	**69,480**	**16.8%**	**73,520**	**17.0%**	**60,130**	**16.0%**	**60,090**	**15.8%**	**63,500**	**16.0%**	**65,820**	**16.0%**	**68,330**	**16.0%**	**70,890**	**16.0%**
a. Wholesale and Retail Trade	55,510	13.4%	58,840	13.6%	47,850	12.7%	47,570	12.5%	50,330	12.6%	52,000	12.6%	53,870	12.6%	55,770	12.5%
b. Hotel	2,650	0.6%	2,730	0.6%	2,490	0.7%	2,590	0.7%	2,670	0.7%	2,760	0.7%	2,800	0.7%	2,830	0.6%
c. Restaurant	11,310	2.7%	11,950	2.8%	9,800	2.6%	9,930	2.6%	10,500	2.6%	11,070	2.7%	11,670	2.7%	12,290	2.8%
7. Transport and Communication	**29,700**	**7.2%**	**31,780**	**7.3%**	**26,980**	**7.2%**	**26,770**	**7.1%**	**29,070**	**7.3%**	**31,340**	**7.6%**	**33,860**	**7.9%**	**37,480**	**8.4%**
a. Transport	24,440	5.9%	25,610	5.9%	20,500	5.4%	19,740	5.2%	21,180	5.3%	22,450	5.5%	23,570	5.5%	25,510	5.7%
b. Communication	5,260	1.3%	6,170	1.4%	6,470	1.7%	7,030	1.9%	7,900	2.0%	8,890	2.2%	10,290	2.4%	11,970	2.7%
8. Financial, Ownership and Business Services	**36,380**	**8.8%**	**38,540**	**8.9%**	**28,280**	**7.5%**	**26,240**	**6.9%**	**27,450**	**6.9%**	**28,930**	**7.0%**	**30,590**	**7.2%**	**32,510**	**7.3%**
a. Bank	15,410	3.7%	16,200	3.7%	10,060	2.7%	8,690	2.3%	9,170	2.3%	9,800	2.4%	10,420	2.4%	11,070	2.5%
b. Non Bank Financial Institutions	3,230	0.8%	3,500	0.8%	2,900	0.8%	2,950	0.8%	3,060	0.8%	3,210	0.8%	3,350	0.8%	3,490	0.8%
c. Services Allied to Financial	250	0.1%	260	0.1%	220	0.1%	230	0.1%	240	0.1%	240	0.1%	250	0.1%	260	0.1%
d. Building Rental	11,270	2.7%	11,830	2.7%	9,480	2.5%	8,910	2.3%	9,210	2.3%	9,630	2.3%	10,160	2.4%	10,870	2.4%
e. Business Services	6,230	1.5%	6,760	1.6%	5,630	1.5%	5,480	1.4%	5,770	1.4%	6,050	1.5%	6,400	1.5%	6,820	1.5%
9. Services	**36,610**	**8.8%**	**37,930**	**8.8%**	**36,480**	**9.7%**	**37,180**	**9.8%**	**38,050**	**9.6%**	**39,250**	**9.5%**	**40,080**	**9.4%**	**41,460**	**9.3%**
a. General Government	23,340	5.6%	23,620	5.5%	21,890	5.8%	22,250	5.9%	22,560	5.7%	22,800	5.5%	22,890	5.4%	23,100	5.2%
b. Private	13,270	3.2%	14,320	3.3%	14,590	3.9%	14,930	3.9%	15,500	3.9%	16,450	4.0%	17,190	4.0%	18,360	4.1%
Gross Domestic Product	**413,800**	**100.0%**	**433,250**	**100.0%**	**376,370**	**100.0%**	**379,350**	**100.0%**	**398,020**	**100.0%**	**411,750**	**100.0%**	**426,940**	**100.0%**	**444,450**	**100.0%**
Gross Domestic Product Non-Oil Gas	**378,870**	**91.6%**	**398,680**	**92.0%**	**341,990**	**90.9%**	**345,420**	**91.1%**	**363,760**	**91.4%**	**379,020**	**92.1%**	**394,530**	**92.4%**	**412,700**	**92.9%**

*)Preliminary Figures **)Very Preliminary Figures

Source: Table 11.1.2 Statistical Yearbook 1999-2003, Central Bureau of Statistics of Indonesia

Table 2.1.1 Gross Domestic Product by Industrial Origin, 1996-2003 (2/2, at Current Market Prices)

Unit: Billion Rupiah

Industrial Origin	1996		1997		1998		1999		2000		2001		2002*)		2003**)	
1. Agriculture, Livestock, Forestry and Fishery	**88,790**	**16.7%**	**101,010**	**16.1%**	**172,830**	**18.1%**	**215,690**	**19.6%**	**217,900**	**17.2%**	**244,720**	**16.7%**	**275,270**	**17.1%**	**296,240**	**16.6%**
a. Farm Food Crops	47,630	8.9%	52,180	8.3%	91,350	9.6%	116,230	10.6%	112,670	8.9%	126,070	8.6%	141,410	8.8%	146,350	8.2%
b. Non-food Crops	14,430	2.7%	16,450	2.6%	33,290	3.5%	35,970	3.3%	33,740	2.7%	37,370	2.5%	42,010	2.6%	47,050	2.6%
c. Livestock and Products	9,520	1.8%	11,690	1.9%	15,740	1.6%	23,760	2.2%	27,030	2.1%	30,470	2.1%	35,120	2.2%	39,040	2.2%
d. Forestry	8,170	1.5%	9,810	1.6%	11,700	1.2%	13,800	1.3%	14,950	1.2%	15,600	1.1%	16,950	1.1%	19,000	1.1%
e. Fishery	9,040	1.7%	10,880	1.7%	20,750	2.2%	25,930	2.4%	29,510	2.3%	35,220	2.4%	39,780	2.5%	44,790	2.5%
2. Mining and Quarrying	**46,090**	**8.7%**	**55,560**	**8.9%**	**120,330**	**12.6%**	**109,930**	**10.0%**	**175,260**	**13.9%**	**193,540**	**13.2%**	**178,200**	**11.1%**	**191,180**	**10.7%**
a. Crude Petroleum and Natural Gas	28,120	5.3%	34,040	5.4%	74,880	7.8%	72,420	6.6%	129,220	10.2%	132,380	9.0%	116,750	7.2%	123,640	6.9%
b. Non-Oil and Gas Mining	9,100	1.7%	11,190	1.8%	35,460	3.7%	27,700	2.5%	34,500	2.7%	47,020	3.2%	44,620	2.8%	47,620	2.7%
c. Quarrying	8,870	1.7%	10,330	1.6%	9,980	1.0%	9,800	0.9%	11,550	0.9%	14,140	1.0%	16,830	1.0%	19,920	1.1%
3. Manufacturing Industry	**136,430**	**25.6%**	**168,180**	**26.8%**	**238,900**	**25.0%**	**285,870**	**26.0%**	**314,920**	**24.9%**	**372,920**	**25.4%**	**409,670**	**25.4%**	**440,450**	**24.7%**
a. Oil and Gas Manufacturing	14,190	2.7%	15,620	2.5%	33,170	3.5%	35,130	3.2%	54,280	4.3%	56,090	3.8%	60,000	3.7%	68,100	3.8%
b. Non Oil-Gas Manufacturing	122,230	23.0%	152,560	24.3%	205,720	21.5%	250,750	22.8%	260,640	20.6%	316,830	21.6%	349,670	21.7%	372,350	20.8%
4. Electricity, Gas and Water Supply	**6,890**	**1.3%**	**7,830**	**1.2%**	**11,280**	**1.2%**	**13,430**	**1.2%**	**16,520**	**1.3%**	**22,170**	**1.5%**	**30,490**	**1.9%**	**39,670**	**2.2%**
a. Electricity	5,660	1.1%	6,450	1.0%	9,330	1.0%	11,200	1.0%	13,800	1.1%	18,770	1.3%	26,320	1.6%	34,680	1.9%
b. Gas	230	0.0%	290	0.0%	310	0.0%	350	0.0%	460	0.0%	620	0.0%	830	0.1%	1,010	0.1%
c. Water Supply	1,000	0.2%	1,090	0.2%	1,650	0.2%	1,870	0.2%	2,260	0.2%	2,780	0.2%	3,340	0.2%	3,970	0.2%
5. Construction	**42,020**	**7.9%**	**46,680**	**7.4%**	**61,760**	**6.5%**	**67,620**	**6.1%**	**76,570**	**6.1%**	**85,600**	**5.8%**	**93,970**	**5.8%**	**107,120**	**6.0%**
6. Trade, Hotel and Restaurant	**87,140**	**16.4%**	**99,580**	**15.9%**	**146,740**	**15.4%**	**175,840**	**16.0%**	**199,110**	**15.7%**	**235,740**	**16.1%**	**265,540**	**16.5%**	**291,590**	**16.3%**
a. Wholesale and Retail Trade	69,380	13.0%	77,540	12.4%	116,690	12.2%	140,590	12.8%	159,380	12.6%	189,490	12.9%	212,510	13.2%	232,390	13.0%
b. Hotel	3,260	0.6%	3,890	0.6%	5,370	0.6%	5,920	0.5%	6,760	0.5%	7,690	0.5%	8,630	0.5%	8,940	0.5%
c. Restaurant	14,500	2.7%	18,150	2.9%	24,690	2.6%	29,320	2.7%	32,960	2.6%	38,560	2.6%	44,390	2.8%	50,250	2.8%
7. Transport and Communication	**34,930**	**6.6%**	**38,530**	**6.1%**	**51,940**	**5.4%**	**55,190**	**5.0%**	**62,310**	**4.9%**	**74,250**	**5.1%**	**92,800**	**5.8%**	**111,730**	**6.3%**
a. Transport	29,250	5.5%	31,500	5.0%	41,840	4.4%	42,740	3.9%	47,910	3.8%	57,910	3.9%	67,690	4.2%	81,040	4.5%
b. Communication	5,680	1.1%	7,030	1.1%	10,100	1.1%	12,450	1.1%	14,390	1.1%	16,330	1.1%	25,110	1.6%	30,690	1.7%
8. Financial, Ownership and Business Services	**43,980**	**8.3%**	**54,360**	**8.7%**	**69,890**	**7.3%**	**71,220**	**6.5%**	**80,460**	**6.4%**	**94,820**	**6.5%**	**110,160**	**6.8%**	**123,000**	**6.9%**
a. Bank	17,710	3.3%	20,300	3.2%	25,820	2.7%	24,430	2.2%	28,550	2.3%	34,060	2.3%	40,030	2.5%	43,680	2.4%
b. Non Bank Financial Institutions	3,820	0.7%	4,530	0.7%	5,400	0.6%	6,140	0.6%	7,140	0.6%	8,550	0.6%	9,530	0.6%	10,410	0.6%
c. Services Allied to Financial	330	0.1%	370	0.1%	480	0.1%	520	0.0%	620	0.0%	730	0.0%	780	0.0%	830	0.0%
d. Building Rental	13,650	2.6%	17,720	2.8%	23,140	2.4%	24,400	2.2%	26,940	2.1%	31,530	2.1%	37,280	2.3%	43,400	2.4%
e. Business Services	8,480	1.6%	11,440	1.8%	15,040	1.6%	15,730	1.4%	17,200	1.4%	19,940	1.4%	22,550	1.4%	24,680	1.4%
9. Services	**46,300**	**8.7%**	**55,960**	**8.9%**	**82,090**	**8.6%**	**104,960**	**9.5%**	**121,870**	**9.6%**	**143,900**	**9.8%**	**154,480**	**9.6%**	**185,720**	**10.4%**
a. General Government	29,750	5.6%	32,130	5.1%	40,640	4.3%	56,750	5.2%	69,460	5.5%	81,850	5.6%	83,290	5.2%	101,610	5.7%
b. Private	16,550	3.1%	23,830	3.8%	41,450	4.3%	48,210	4.4%	52,410	4.1%	62,050	4.2%	71,190	4.4%	84,120	4.7%
Gross Domestic Product	**532,570**	**100.0%**	**627,700**	**100.0%**	**955,750**	**100.0%**	**1,099,730**	**100.0%**	**1,264,920**	**100.0%**	**1,467,650**	**100.0%**	**1,610,570**	**100.0%**	**1,786,690**	**100.0%**
Gross Domestic Product Non-Oil Gas	**490,260**	**92.1%**	**578,040**	**92.1%**	**847,700**	**88.7%**	**992,180**	**90.2%**	**1,081,420**	**85.5%**	**1,279,190**	**87.2%**	**1,433,820**	**89.0%**	**1,594,940**	**89.3%**

*)Preliminary Figures **)Very Preliminary Figures

Source: Table 11.1.1 Statistical Yearbook 1999-2003, Central Bureau of Statistics of Indonesia

Table 2.1.2 Trend of Export by Industrial Origin 1997-2003

（Unit: US$ Million, %）

Industrial Origin	1997		1998		1999		2000		2001		2002		2003	
	Value	Growth	Value	Growth	Value	Growth	Value	Growth	Value	Growth	Value	Growth	Value	Growth
I. Oil and Gas														
Crude Oil	5,480	-4.1	3,349	-38.9	4,517	34.9	6,090	34.8	5,715	-6.2	5,228	-8.5	5,621	7.5
Oil Products	1,303	-14.1	708	-45.6	918	29.6	1,652	79.9	1,189	-28.0	1,308	9.9	1,554	18.8
Gas	4,840	7.7	3,816	-21.2	4,357	14.2	6,625	52.1	5,732	-13.5	5,578	-2.7	6,477	16.1
Total	**11,623**	**-0.8**	**7,872**	**-32.3**	**9,792**	**24.4**	**14,367**	**46.7**	**12,636**	**-12.0**	**12,113**	**-4.1**	**13,651**	**12.7**
II. Agricultural Products														
Coffee	504	-14.5	579	15.0	458	-20.8	312	-32.0	183	-41.4	219	19.8	251	14.7
Shrimp	1,008	-0.7	1,007	-0.1	888	-11.9	1,003	13.0	940	-6.3	840	-10.6	853	1.5
Spices	230	46.0	278	20.6	273	-1.5	314	15.0	174	-44.5	186	6.8	186	-0.1
Tea	84	-22.8	108	28.4	92	-15.1	108	17.5	95	-12.4	98	3.5	92	-6.3
Fish and Other Related	424	-1.3	390	-8.1	441	13.1	364	-17.4	359	-1.4	378	5.1	424	12.3
Cocoa	295	12.2	383	29.7	297	-22.5	236	-20.6	277	17.4	521	88.5	411	-21.3
Tobacco	91	- *)	133	46.1	79	-40.4	64	-19.6	81	27.0	67	-17.7	45	-33.1
Others	636	- *)	776	22.0	373	-51.9	308	-17.5	330	7.2	260	-21.4	265	2.2
Total	**3,272**	**12.3**	**3,653**	**11.7**	**2,901**	**-20.6**	**2,709**	**-6.6**	**2,439**	**-10.0**	**2,568**	**5.3**	**2,526**	**-1.7**
Ⅲ.Industrial Goods														
Plywood	3,411	-5.1	2,078	-39.1	2,256	8.6	1,989	-11.9	1,838	-7.6	1,748	-4.9	1,663	-4.9
Garments	2,876	-19.6	2,588	-10.0	3,818	47.5	4,703	23.2	4,477	-4.8	3,887	-13.2	4,038	3.9
Processed Rubber	1,929	-13.4	1,548	-19.8	1,236	-20.1	1,320	6.8	1,208	-8.5	1,561	29.2	2,090	33.9
Furniture & Parts	755	-20.3	354	-53.1	1,231	247.8	1,509	22.6	1,414	-6.2	1,502	6.2	1,558	3.8
Tulle and Lace	1,229	-22.2	1,256	2.2	1,477	17.6	1,720	16.4	1,528	-11.2	1,285	-15.9	1,311	2.0
Based Metal Goods	1,652	-0.8	1,704	3.2	1,899	11.4	2,367	24.7	2,043	-13.7	1,903	-6.9	2,493	31.1
Electrical Appliance	1,371	-2.9	1,491	8.8	1,692	13.5	3,162	86.9	2,605	-17.6	2,700	3.6	3,121	15.6
Audio Visual	1,888	- *)	1,559	-17.4	1,458	-6.5	3,258	123.5	3,259	0.0	3,291	1.0	2,899	-11.9
Fertilizer	312	595.9	169	-45.9	187	10.7	212	13.2	130	-38.4	135	3.4	188	39.6
Palm Oil	1,446	-62.2	745	-48.5	1,114	49.5	2,087	87.3	1,081	-48.2	2,092	93.6	2,455	17.3
Footwear	1,531	-34.1	1,206	-21.2	1,602	32.8	1,672	4.4	1,506	-10.0	1,148	-23.7	1,182	3.0
Processed Food	834	59.1	756	-9.4	958	26.8	955	-0.3	1,043	9.1	1,184	13.6	1,242	4.9
Others	15,613	- *)	19,140	22.6	14,404	-24.7	17,050	18.4	15,541	-8.8	16,293	4.8	16,641	2.1
Total	**34,846**	**8.5**	**34,593**	**-0.7**	**33,332**	**-3.6**	**42,003**	**26.0**	**37,671**	**-10.3**	**38,730**	**2.8**	**40,880**	**5.6**
Ⅳ.Mining Products														
Copper Ore	1,497	-14.3	1,307	-12.7	1,231	-5.9	1,621	31.7	1,704	5.1	1,756	3.0	1,855	5.7
Coal	1,485	32.5	1,346	-9.3	1,304	-3.2	1,277	-2.1	1,618	26.7	1,762	9.0	1,980	12.4
Nickel Ore	38	-10.7	27	-28.5	19	-31.0	42	123.3	56	31.5	51	-8.5	60	17.1
Natural Sands	63	- *)	20	-68.3	23	14.9	31	34.2	61	95.5	27	-55.4	10	-63.3
Bauxite	9	0.0	9	-4.3	10	8.9	13	28.6	13	-0.8	21	66.4	19	-9.1
Others	77	- *)	14	-81.7	48	243.3	58	18.8	119	107.1	127	6.8	72.4	-43.1
Total	**3,171**	**6.1**	**2,724**	**-14.1**	**2,635**	**-3.3**	**3,041**	**15.4**	**3,570**	**17.4**	**3,744**	**4.9**	**3,996**	**6.7**
V. Other Sectors	**533**	**40,877**	**4**	**-99.2**	**5**	**11.4**	**5**	**-8.2**	**5**	**20.0**	**5**	**-16.7**	**5**	**15.6**
Total Value	**53,444**	**7.4**	**48,848**	**-8.6**	**48,666**	**-0.4**	**62,124**	**27.7**	**56,321**	**-9.3**	**57,159**	**1.5**	**61,058**	**6.8**

Source: Indonesia Foreign Trade Statistic/Export Volume I, Central Bureau of Statistics of Indonesia, 1997 - 2003

*): Classification of the commodities in 1996 is different so the growth rate can not be calculated

Table 2.2.1 State Budget (FY 2002, FY2003 and FY 2004)

(billion rupiah)

	2002				2003				2004	
	Approved Budget		Realization		Approved Budget		Realization		Approved Budget	
A. Total Revenue and Grants	**301,874**	**87.8%**	**300,127**	**91.8%**	**336,156**	**90.7%**	**341,095**	**91.0%**	**349,934**	**93.5%**
I. Domestic revenue	**301,874**	**87.8%**	**299,831**	**91.7%**	**336,156**	**90.7%**	**340,658**	**90.9%**	**349,300**	**93.3%**
1. Tax revenue	**219,628**	**63.8%**	**210,970**	**64.5%**	**254,140**	**68.6%**	**241,627**	**64.5%**	**272,175**	**72.7%**
a. Domestic taxes	207,029	60.2%	200,340	61.3%	241,742	65.2%	230,550	61.5%	260,224	69.5%
i. Income tax	104,497	30.4%	101,717	31.1%	120,925	32.6%	114,832	30.6%	133,968	35.8%
1. Oil and gas	15,682	4.6%	17,215	5.3%	14,776	4.0%	18,781	5.0%	13,133	3.5%
2. Non-oil	88,815	25.8%	84,502	25.8%	106,149	28.6%	96,051	25.6%	120,835	32.3%
ii. Value added tax	70,100	20.4%	65,853	20.1%	80,790	21.8%	76,761	20.5%	86,273	23.0%
iii. Land and building tax	5,924	1.7%	6,347	1.9%	7,524	2.0%	8,763	2.3%	8,031	2.1%
iv. Duties on land & building transfe	2,205	0.6%	1,614	0.5%	2,402	0.6%	2,143	0.6%	2,668	0.7%
v. Excise	22,353	6.5%	23,341	7.1%	27,946	7.5%	26,396	7.0%	27,671	7.4%
vi. Other	1,950	0.6%	1,468	0.4%	2,157	0.6%	1,654	0.4%	1,614	0.4%
b. International trade taxes	12,599	3.7%	10,630	3.2%	12,398	3.3%	11,077	3.0%	11,951	3.2%
i. Import duties	12,249	3.6%	10,399	3.2%	11,960	3.2%	10,847	2.9%	11,636	3.1%
ii. Export duties	350	0.1%	231	0.1%	438	0.1%	230	0.1%	315	0.1%
2. Non tax revenue	**82,247**	**23.9%**	**88,861**	**27.2%**	**82,015**	**22.1%**	**99,031**	**26.4%**	**77,124**	**20.6%**
a. Natural resources	63,195	18.4%	64,958	19.9%	59,396	16.0%	67,066	17.9%	47,241	12.6%
i. Oil	44,013	12.8%	48,802	14.9%	39,911	10.8%	-	-	-	-
ii. Gas	14,524	4.2%	10,949	3.3%	16,285	4.4%	-	-	-	-
iii. Mining	1,340	0.4%	1,850	0.6%	1,483	0.4%	-	-	-	-
iv. Forestry	3,026	0.9%	3,155	1.0%	1,268	0.3%	-	-	-	-
v. Fishery	292	0.1%	203	0.1%	450	0.1%	-	-	-	-
vi. Other	-	-	-	-	-	-	-	-	-	-
b. Profit transfer from SOE's	10,351	3.0%	10,301	3.1%	10,414	2.8%	12,614	3.4%	11,454	3.1%
c. Other	8,700	2.5%	13,602	4.2%	12,206	3.3%	19,351	5.2%	18,430	4.9%
II. Grants	**-**	**-**	**296**	**0.1%**	**-**	**-**	**437**	**0.1%**	**634**	**0.2%**
B. Total expenditure	**344,009**	**100%**	**327,082**	**100%**	**370,592**	**100%**	**374,764**	**100%**	**374,351**	**100%**
I. Central Government Expenditure	**246,040**	**71.5%**	**228,636**	**69.9%**	**253,714**	**68.5%**	**254,081**	**67.8%**	**255,309**	**68.2%**
1. Current expenditure	**193,741**	**56.3%**	**188,455**	**57.6%**	**188,584**	**50.9%**	**189,082**	**50.4%**	**184,438**	**49.3%**
a. Personnel	41,298	12.0%	39,474	12.1%	50,241	13.6%	47,228	12.6%	56,738	15.2%
b. Good and services	12,863	3.7%	11,582	3.5%	15,427	4.2%	13,851	3.7%	17,280	4.6%
c. Interest payment	88,500	25.7%	90,088	27.5%	81,975	22.1%	69,235	18.5%	65,651	17.5%
i. Domestic interest	59,527	17.3%	64,421	19.7%	55,180	14.9%	-	-	41,276	11.0%
ii. External interest	28,975	8.4%	25,666	7.8%	26,795	7.2%	-	-	24,375	6.5%
d. Subsidies	41,586	12.1%	40,006	12.2%	25,465	6.9%	43,885	11.7%	26,362	7.0%
i. Oil subsidies	30,377	8.8%	31,162	9.5%	13,210	3.6%	-	-	-	-
ii. Non oil subsidies	11,209	3.3%	8,845	2.7%	12,255	3.3%	-	-	-	-
e. Other current expenditure	9,494	2.8%	7,304	2.2%	15,476	4.2%	14,824	4.0%	18,407	4.9%
2. Development expenditure	**52,299**	**15.2%**	**40,181**	**12.3%**	**65,130**	**17.6%**	**64,999**	**17.3%**	**70,871**	**18.9%**
a. Rupiah financing	26,469	7.7%	27,639	8.5%	46,230	12.5%	48,845	13.0%	50,500	13.5%
b. Project aid	25,830	7.5%	12,542	3.8%	18,900	5.1%	16,154	4.3%	20,371	5.4%
II. Balance Budget	**94,532**	**27.5%**	**94,688**	**28.9%**	**107,491**	**29.0%**	**111,418**	**29.7%**	**112,187**	**30.0%**
1. Revenue sharing	24,600	7.2%	24,918	7.6%	27,896	7.5%	31,757	8.5%	26,928	7.2%
2. General allocation fund	69,114	20.1%	69,135	21.1%	76,978	20.8%	76,938	20.5%	82,131	21.9%
3. Specific allocation fund	817	0.2%	636	0.2%	2,617	0.7%	2,723	0.7%	3,128	0.8%
III Special Outonomy	**3,437**	**1.0%**	**3,759**	**1.1%**	**9,387**	**2.5%**	**9,256**	**2.5%**	**6,855**	**1.8%**
C. Primary Balance {A-(B-BI.1.c)}	**46,366**	**13.5%**	**63,133**	**19.3%**	**47,539**	**12.8%**	**35,566**	**9.5%**	**41,234**	**11.0%**
D. Overall Balance (A - B)	**-42,134**	**12.2%**	**-26,955**	**8.2%**	**-34,436**	**9.3%**	**-33,669**	**9.0%**	**-24,418**	**6.5%**
E. Financing	**42,135**	**12.2%**	**26,956**	**8.2%**	**34,436**	**9.3%**	**33,669**	**9.0%**	**24,418**	**6.5%**
I. Domestic financing	**23,501**	**6.8%**	**19,659**	**6.0%**	**22,450**	**6.1%**	**32,115**	**8.6%**	**40,556**	**10.8%**
1. Domestic bank financing	-	-	-5,585	-1.7%	8,500	2.3%	-	-	19,199	5.1%
2. Non domestic bank financing	23,501	6.8%	25,244	7.7%	13,950	3.8%	-	-	21,358	5.7%
a. Privatization proceeds	3,952	1.1%	7,635	2.3%	8,000	2.2%	-	-	5,000	1.3%
b. Assests recovery	19,549	5.7%	19,549	6.0%	18,000	4.9%	-	-	5,000	1.3%
c. Government Bonds	-	0.0%	-1,939	-0.6%	-12,050	-3.3%	-	-	11,358	3.0%
i. Government bonds issues	-	-	1,991	0.6%	7,700	2.1%	-	-	-	-
ii. Amortization on domestic bond	-	-	-3,931	-1.2%	-6,166	-1.7%	-	-	-	-
iii. Government bonds buy back	-	-	-	-	-13,584	-3.7%	-	-	-	-
d. Government Bonds	-	-	-	-	-	-	-	-	-	-
II. Foreign financing	**18,634**	**5.4%**	**7,297**	**2.2%**	**11,986**	**3.2%**	**1,554**	**0.4%**	**-16,139**	**-4.3%**
1. Withdrawing	35,359	10.3%	19,288	5.9%	29,250	7.9%	17,652	4.7%	-	-
a. Program aid	9,529	2.8%	7,042	2.2%	10,350	2.8%	1,792	0.5%	-	-
b. Project aid	25,830	7.5%	12,246	3.7%	18,900	5.1%	15,860	4.2%	-	-
2. Amortization	-16,726	-4.9%	-11,991	-3.7%	-17,264	-4.7%	-16,098	-4.3%	-	-

Data source: Ministry of Finance

Table 2.2.2 Expenditures for Development Based on Sector and Sub-Sector, 2000 - 2004

(Rp. Million)

Items	2000 (PAN)	2001 (PAN)	2002 (PAN)	2003 (APBN-P)	2004 (APBN)
01 INDUSTRY	**131,305.9**	**725,234.1**	**299,474.6**	**493,032.7**	**1,063,115.0**
02 AGRICULTURE, FORESTRY, MARINE AND FISHERY	**1,948,666.1**	**2,157,309.4**	**2,475,808.2**	**4,895,759.0**	**4,918,740.0**
1 Sub-Sector Agriculture	1,896,386.1	1,435,712.4	1,659,372.3	3,265,339.4	3,304,833.0
2 Sub-Sector Forestry	52,280.0	91,161.9	64,983.7	177,376.1	107,728.0
3 Sub-Sector Marine and Fishery	0.0	630,435.1	751,452.2	1,453,043.5	1,506,179.0
03 WATER RESOURCES	**2,139,123.5**	**3,693,324.4**	**2,768,860.3**	**4,221,558.3**	**4,798,045.7**
1 Sub-Sector Water Resources Development and Management	1,401,290.6	2,062,406.2	1,262,290.5	1,997,035.1	2,584,964.9
2 Sub-Sector Water Sources Development and Management	737,832.9	1,630,918.2	1,506,569.8	2,224,523.2	2,213,080.8
04 MAN POWER	**145,866.2**	**119,208.8**	**179,882.7**	**398,500.0**	**300,128.0**
05 TRADE, DEVELOPMENT OF NATIONAL BUSINESS, FINANCE AND COOPERATIVE	**1,288,063.3**	**4,882,282.0**	**1,057,830.9**	**1,859,799.4**	**1,548,407.0**
1 Sub-Sector Domestic Trade	144,362.7	41,445.4	67,204.9	102,600.0	117,000.0
2 Sub-Sector Foreign Trading	36,109.1	106,194.2	114,891.4	303,950.0	293,785.0
3 Sub-Sector National Business Development	67,259.5	74,436.4	44,703.5	136,000.0	135,000.0
4 Sub-Sector Finance	813,502.2	4,446,048.8	139,451.8	136,749.4	74,122.0
5 Sub-Sector Cooperative and Micro, Small and Mid Business Enterprises	226,829.8	214,157.2	691,579.3	1,180,500.0	928,500.0
06 TRANSPORTATION, METEOROLOGY AND GEOPHYSICS	**3,496,660.9**	**6,002,937.7**	**4,736,330.2**	**9,767,285.8**	**9,922,676.5**
1 Sub-Sector Road Infrastructure	2,826,246.9	3,126,777.5	2,150,885.8	4,998,834.4	5,115,244.5
2 Sub-Sector Land Transportation	428,038.0	860,812.6	818,788.0	1,783,948.8	1,829,998.0
3 Sub-Sector Sea Transportation	75,135.3	832,659.9	706,471.2	1,658,594.0	1,272,434.0
4 Sub-Sector Air Transportation	161,508.5	1,164,986.9	1,018,441.9	1,186,937.5	1,520,000.0
5 Sub-Sector Meteorology, Geography, Search and Rescue	5,732.2	17,700.8	41,743.3	138,971.1	185,000.0
07 MINING AND ENERGY	**1,273,898.6**	**2,462,528.4**	**1,561,258.7**	**2,794,306.3**	**2,852,243.0**
1 Sub-Sector Mining	36,345.7	33,631.7	38,461.1	463,180.3	287,967.0
2 Sub-Sector Energy	1,237,552.9	2,428,896.7	1,522,797.6	2,331,126.0	2,564,276.0
08 TOURISM, POS, TELECOMMUNICATION AND INFORMATION	**398,465.5**	**628,939.5**	**167,786.6**	**317,039.0**	**381,816.0**
1 Sub-Sector Tourism	23,996.8	68,673.9	57,813.0	255,464.0	195,716.0
2 Sub-Sector Post, Telecommunication and Information	374,468.7	560,265.6	109,973.6	61,575.0	186,100.0
09 REGIONAL DEVELOPMENT	**18,992,454.2**	**2,447,439.0**	**3,688,953.5**	**1,239,672.0**	**3,227,800.0**
1 Sub-Sector Regional Autonomy	18,641,918.5	2,001,788.7	2,260,293.4	148,129.6	190,520.0
2 Sub-Sector Regional Development and Community Empowerment	350,535.7	445,650.3	1,428,660.1	1,091,542.4	3,037,280.0
10 NATURAL RESOURCES, LIVING ENVIRONMENT AND SPATIAL MANAGEMENT	**586,060.8**	**576,587.3**	**332,660.7**	**508,091.1**	**777,833.0**
1 Sub-Sector Natural Resources and Living Environment	460,290.5	384,253.3	218,723.8	379,455.7	534,991.0
2 Sub-Sector Spatial Management Land Affairs	125,770.3	192,334.0	113,936.9	128,635.4	242,842.0
11 EDUCTION, NATIONAL CULTURE, YOUTH AND SPORTS	**4,593,986.2**	**8,480,090.4**	**9,239,250.7**	**16,055,192.5**	**15,338,713.0**
1 Sub-Sector Education	4,278,773.7	8,108,225.4	8,810,777.2	14,990,672.2	14,301,748.0
2 Sub-Sector Extra Curricular Education	243,173.4	295,472.1	301,230.2	662,758.3	695,659.0
3 Sub-Sector National Culture	40,334.8	37,949.6	42,884.4	150,762.0	135,306.0
4 Sub-Sector Youth and Sports	31,704.3	38,443.3	84,358.9	251,000.0	206,000.0
12 POPULATION AND FAMILY	**264,422.5**	**368,406.9**	**270,239.5**	**630,407.0**	**517,147.0**
13 SOCIAL WELFARE, HEALTH, AND WOMEN EMPOWERMENT	**2,442,062.0**	**3,222,787.6**	**3,595,845.7**	**7,041,060.5**	**7,290,288.0**
1 Sub-Sector Social Welfare	228,625.7	912,358.5	1,122,134.9	1,786,629.3	1,768,900.0
2 Sub-Sector Health	1,862,048.7	2,294,211.4	2,443,434.7	5,186,081.2	5,441,970.0
3 Sub-Sector Women Empowerment	351,387.6	16,217.7	30,276.1	68,350.0	79,418.0
14 HOUSING AND SETTLEMENTS	**3,032,973.6**	**1,501,877.6**	**928,389.2**	**1,613,867.7**	**1,631,289.8**
1 Sub-Sector Housing	3,025,255.6	1,485,464.7	332,480.2	570,115.7	699,900.0
2 Sub-Sector Settlements	7,718.0	16,412.9	595,909.0	1,043,752.0	931,389.8
15 RELIGION	**70,385.1**	**134,539.7**	**68,295.9**	**138,500.0**	**166,000.0**
1 Sub-Sector Religion Live Service	48,670.9	22,686.8	29,646.0	80,445.0	97,000.0
2 Sub-Sector Religion Education Development	21,714.2	111,852.9	38,649.9	58,055.0	69,000.0
16 SCIENCE AND TECHNOLOGY	**411,219.9**	**660,722.0**	**577,192.4**	**1,208,720.3**	**983,190.0**
1 Sub-Sector Technical Production and Technology	115,530.7	249,983.0	157,793.8	252,150.6	194,351.0
2 Sub-Sector Science and Technology Service and Application	28,312.2	59,170.6	199,011.2	379,463.7	357,564.0
3 Sub-Sector Science and Technology Infrastructure and Facilities Institution	57,497.0	108,901.7	115355.6	266758.2	212425
4 Sub-Sector Marine	31,405.5	66,228.5	105,031.8	310,347.8	218,850.0
5 Sub-Sector aerospace affairs	24,785.6	78,754.1	0.0	0.0	0.0
6 Sub-Sector Statistics	153,688.9	97,684.1	0.0	0.0	0.0
17 LEGAL	**123,283.5**	**294,441.5**	**435,384.7**	**1,044,729.7**	**1,092,680.0**
1 Sub-Sector National Law Development	12,755.3	20,400.7	21,435.0	46,500.0	46,700.0
2 Sub-Sector Law Apparatus Development	31,273.7	83,364.2	413,949.7	998,229.7	1,045,980.0
3 Sub-Sector Infrastructure	79,254.50	190,676.6	0.0	0.0	0.0
18 STATE APPARATUS AND SUPERVISION	**491,487.8**	**1,078,614.4**	**1,075,894.1**	**3,293,348.8**	**3,028,068.0**
1 Sub-Sector State Apparatus	441,040.1	952,060.7	1,045,418.8	3,230,548.8	2,939,968.0
2 Sub-Sector System Efficiency and Control Implementation	50,447.7	126,553.7	30,475.3	62,800.0	88,100.0
19 HOME POLITICS, FOREIGN RELATION, INFORMATION AND COMMUNICATION	**38,648.3**	**219,330.4**	**91,350.0**	**476,281.6**	**311,200.0**
1 Sub-Sector Home Politics	1,720.6	15,538.4	17,423.5	46,500.0	37,000.0
2 Sub-Sector Foreign Relation	9,837.2	15,529.0	14,087.9	224,060.0	42,000.0
3 Sub-Sector Information and Communication	27,090.5	188,263.0	59,838.6	205,721.6	232,200.0
20 DEFENCE AND SECURITY	**1,010,301.2**	**1,928,398.9**	**3,773,981.5**	**8,653,397.1**	**10,721,820.0**
1 Sub-Sector Defence	625,530.6	715,200.0	2,531,382.1	6,223,913.2	7,702,290.0
2 Sub-Sector Security	197,068.9	732,016.5	1,242,599.4	2,429,483.9	3,019,530.0
3 Sub-Sector Police *)	106,676.9	255,628.9	0.0	0.0	0.0
4 Sub-Sector Other Supporting Agency *)	81,024.8	225,553.5	0.0	0.0	0.0
Total	**42,879,335.1**	**41,585,000.0**	**37,324,670.1**	**66,650,548.8**	**70,871,200.0**

Source: Ministry of Finance

*) since 2002 Sector Defence and Security only divided into Sub-Sector defence and Security

Table 2.2.3 Trend of External ・Domestic/Public・Private Debts 1994-2004

Period		Bank Indonesia Rate of Rp for $	Domestic Debts						External Debts			
			Private				Public		Private		Public	
			For Banks		For IBRA							
			(Rp in Billion)	($ in Million)	(Rp in Billion)	($ in Million)	(Rp in Billion)	($ in Million)	(Rp in Billion)	($ in Million)	(Rp in Billion)	($ in Million)
		(a)	(b)	(c.)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)
Year 1994	Month 3	2,144	167,953	78,336	-	-	-	-	na	na	129,107	60,218
	6	2,160	175,037	81,036	-	-	-	-	na	na	134,724	62,372
	9	2,181	185,704	85,146	-	-	-	-	na	na	140,443	64,394
	12	2,200	200,459	91,118	-	-	-	-	83,347	37,885	140,114	63,688
1995	3	2,219	207,593	93,553	-	-	-	-	na	na	149,956	67,578
	6	2,246	221,449	98,597	-	-	-	-	na	na	157,402	70,081
	9	2,276	235,507	103,474	-	-	-	-	na	na	150,601	66,169
	12	2,308	247,480	107,227	-	-	-	-	111,347	48,244	148,658	64,410
1996	3	2,336	252,689	108,172	-	-	-	-	111,862	47,886	148,371	63,515
	6	2,342	265,409	113,326	-	-	-	-	na	na	144,298	61,613
	9	2,340	279,441	119,419	-	-	-	-	na	na	142,864	61,053
	12	2,383	299,261	125,582	-	-	-	-	130,750	54,868	140,704	59,045
1997	3	2,419	311,108	128,610	-	-	-	-	146,369	60,508	136,156	56,286
	6	2,450	333,173	135,989	-	-	-	-	159,152	64,960	141,926	57,929
	9	3,275	378,999	115,725	-	-	-	-	213,658	65,239	184,766	56,417
	12	4,650	386,777	83,178	-	-	-	-	334,577	71,952	269,049	57,860
1998	3	8,325	489,245	58,768	na	na	-	-	696,211	83,629	482,867	58,002
	6	14,900	668,694	44,879	na	na	-	-	1,269,420	85,196	881,693	59,174
	9	10,700	565,138	52,817	na	na	80,000	7,477	889,352	83,117	668,911	62,515
	12	8,025	512,662	63,883	na	na	100,000	12,461	674,164	84,008	573,579	71,474
1999	3	8,685	368,507	42,430	na	na	164,500	18,941	707,871	81,505	629,888	72,526
	6	6,726	259,713	38,613	na	na	322,100	47,889	499,453	74,257	501,343	74,538
	9	8,386	270,981	32,313	234,456	27,958	322,100	38,409	596,194	71,094	661,060	78,829
	12	7,100	226,492	31,900	235,787	33,209	510,070	71,841	512,869	72,235	573,140	80,724
2000	3	7,590	230,956	30,429	217,575 1)	31,082	510,070	67,203	523,642	68,991	606,987	79,972
	6	8,735	242,643	27,778	256,195 2)	36,599	610,190	69,856	591,167	67,678	711,754	81,483
	9	8,780	243,129	27,691	268,266 3)	38,324	640,397	72,938	574,177	65,396	706,079	80,419
	12	9,595	272,956	28,448	286,278 4)	40,897	660,070	68,793	574,177	66,777	767,331	79,972
2001	3	10,400	287,892	27,682	310,697 5)	44,385	na	na	692,047	66,543	804,190	77,326
	6	11,440	307,963	26,920	310,267 6)	44,324	656,670 1)	57,401	759,067	66,352	863,743	75,502
	9	9,675	305,610	31,588	310,918 7)	44,417	670,060 2)	69,257	605,587	62,593	748,032	77,316
	12	10,400	303,056	29,140	310,701 8)	44,386	671,900 3)	64,606	641,638	61,696	787,488	75,720
2002	3	9,655	299,044	30,973	319,652 9)	45,665	700,560 4)	72,559	578,122	59,878	733,326	75,953
	6	8,730	304,894	34,925	353,012 10)	40,891	650,390 5)	74,501	506,157	57,979	684,502	78,408
	9	9,015	333,385	36,981	367,776 11)	40,796	645,690 6)	71,624	521,292	57,825	697,905	77,416
	12	8,940	358,174	40,064	367,752 12)	40,861	650,430 7)	72,755	506,737	56,682	700,968	78,408
2003	3	8,908	369,615	41,492	321,700 13)	36,244	640,140 8)	71,861	489,521	54,953	688,277	77,265
	6	8,285	384,874	46,454	328,120 14)	36,967	624,000 9)	75,317	452,187	54,579	671,582	81,060
	9	8,389	407,837	48,616	310,410 15)	34,972	618,900 10)	73,775	455,053	54,244	693,527	82,671
	12	8,465	434,253	51,300	347,520 16)	39,153	623,940 11)	73,708	457,085	53,997	733,560	86,658
2004	3	8,587	443,126	51,604	-	-	na	na	468,565	54,567	749,911	87,331
	6	9,415	480,985	51,087	-	-	na	na	na	na	na	na

Source : Bank Indonesia, Indonesian Financial Statistics, www.bi.go.id
CEIC Indonesia (http://www.ceicdata.com/)
Badan Penyehatan Perbankan Nasional (BPPN)/ Indonesian Banking Restructuring Agency, Monthly Report 2000-2003
Departemen Keuangan (Ministry of Finance), Direktorat Pengelola Surat Utang Negara, Monthly Report June 2001- January 2004

Note :

(a) Midle exchange rate, Bank Indonesia. The US$ amount of each chatagory is converted based on midle exchane rate, except mentioned other.

(b) Commercial bank balance sheet, CEIC Data Base

(d) Badan Penyehatan Perbankan Nasional (BPPN) Monthly Report, www.bppn.go.id. 1999 data is refer to Indonesia material data book issued by Institute of Developing Economies (IDE-JETRO).

1) - The amount is based on the data ended March 15th and not included credit card (Monthly Report April 2000, pg 4)
- From the total of 75 banks recaped, there were just 74 banks included by law (except Bank Bali)
- BPPN converted by use of Rp 7000/US$

2) - The amount is based on the data ended June 30th and not included credit card (Monthly Report July 2000, pg 4)
- BPPN converted by use of Rp 7000/US$

3) - The amount is based on the data ended September 30th and not included credit card (Monthly Report October 2000, pg 5)
- BPPN converted by use of Rp 7000/US$

4) - As of December 12th, BPPN converted by use of Rp 7000/US$ (Monthly Report January 2001, pg 4)

5) - As of March 30th, not include credit card, interest and interest expense, BPPN converted by use of Rp 7000/US$ (Monthly Report April 2001, pg 5)

6) - As of June 31st, not include credit card, BPPN converted by use of Rp 7000/US$ (Monthly Report July 2001, pg 5)

7) - As of September 21st, not include credit card, BPPN converted by use of Rp 7000/US$ (Monthly Report October 2001, pg 5)

8) - As of December 28th, not include credit card, BPPN converted by use of Rp 7000/US$ (Monthly Report January 2002, pg 6)

9) -As of April 5th, not include credit card, BPPN converted by use of Rp 7000/US$ (Monthly Report April 2002, pg 6)

10) -As of June 28th, not include credit card, BPPN converted by use of Rp 8633/US$ (Monthly Report July 2002, pg 6)

11) -As of September 22nd, not include credit card, BPPN converted by use of Rp 9000/US$ (Monthly ReportOctober 2002, pg 6)

12) -As of January 3rd 2003, not include credit card, BPPN converted by use of Rp 9000/US$ (Monthly Report January 2003, pg 6)

13) -As of April 9th, not include credit card, BPPN converted by use of Rp 8876/US$ (Monthly Report April 2003, pg 6-8

14) -As of June 30th, exchange rate not mentioned, it assumed as of previous month (Monthly Report July 2003, pg 5)

15) -As of October 10th, exchange rate not mentioned, it assumed as of previous month (Monthly Report October 2003, pg 7)

16) -As of the end of 2003, exchange rate not mentioned (Monthly Report December 2003, pg 1)

(f) 1998~2000 data is refer to Indonesia material data book issued by Institute of Developing Economies (IDE-JETRO) Following data is refer to MOF monthly report
(1)June 2001 (2)Oct 2001 (3)January 2002 (4)April 2002 (5)July 2002 (6)October 2002 (7)January 2003 (8)April 2003 (9)July 2003 (10)October 2003 (11)January 2004

(i) Bank Indonesia, www.bi.go.id.go.id.

(k) Public External Debt, CEIC data base. This amount includes State Owned Enterprise external debt

1. The issue of government bonds was commended on 25th of September 1998
2. BPPN was closed on February 27th 2004, by the law of Presidential Decree Number 15/2004. The function of IBRA was substited by Perusahaan Pengelola Aset Negara (PPAN) but the regulation is still not clear.

Table 2.4.1 List of Dinas and Office for Agriculture and Fisheries in 8 Kabupatens in South Sulawesi Province (1/4)

1. Selayer

Dinas	Sub-Dinas	Section
- Dinas Agriculture and Forestry 76 Staff (No agricultural extension)	- Food Crop & Horticulture	1) Food crops & horticultural production, 2) Agribusiness of food crops and horticulture establishment, 3) Plant and horticulture protection
	- Estate & Forestry	1) Estate production, 2) Agricultural estate business establishment, 3) Conservation and business empowerment
	- Livestock	1) Livestock production, 2) Agricultural livestock business establishment, 3) Animal health
- Dinas Fishery & Marine	- Research & Technology	1) Information research, 2) Information & marine culture development
	- Coastal & Small Island	1) Seashore development, 2) Archipelago development
	- Capture Fishery & Aquaculture	1) Capture fishery, 2) Aquaculture
	- Management of Fishermen Institution	1) Fishermen institution, 2) Quality & marketing information, 3) Fishing permission
	- Control Supervision of Fishery Resources	1) Protection & conservation of fish resource, 2) Fish resource control, 3) Shrimp and fish disease service
- Office (Kantor) for Food Security		

2. Bulukumba

Dinas	Sub-Dinas	Section
- Dinas Food Crops & Horticulture	- Production Supervision	1) Facility & infrastructure, 2) Production technology, 3) Conservation
	- Business Supervision	1) Farming business, 2) Extension & organization, 3) Information & services
- Dinas Estate Crops	- Development & Production	1) Area development & expansion, 2) Conservation, 3) Animal health
	- Agribusiness & Agro-industry	1) Nursery & production, 2) Capitalization institution, 3) Farming supervision
- Dinas Livestock	- Production	1) Processing, 2) Capital, facility development & institutional supervision, 3) Dissemination & development
	- Livestock Health	1) Veterinary medicine, 2) Contagious disease control & eradication, 3) Health service & drug & livestock monitoring
- Dinas Marine & Fishery	- Production Supervision	1) Marine exploration & exploitation, 2) Production facility development & organization, 3) Marine product exploitation & marketing section
	- Monitoring & Conservation	1) Fishery & environmental resources conservation, 2) Environmental & coral reef monitoring/control, 3) Marine facilities & service
- Office (Kantor) for Food Security		

Table 2.4.1 List of Dinas and Office for Agriculture and Fisheries in 8 Kabupatens in South Sulawesi Province (2/4)

3. Jenepont

Dinas	Sub-Dinas	Section
- Dinas Agriculture & Forestry	- Food Crop	1) Paddy and polowijo production, 2) Processing & marketing, 3) Rehabilitation & food protection
	- Husbandry	1) Husbandry production, 2) Animal health section, Livestock distribution & development, Retribution & other incomes
	- Forestry	1) Reforestation & soil conservation, 2) Area reforestation & rehabilitation, 3) Forest supervision & protection, 4) Forest crops distribution & forest business
	- Plantation	1) Plantation business, 2) Production establishment, 3) Plantation area & plantation industry, 4) Plantation supervision & protection
	- Horticulture	1) Seed development, 2) Agricultural & horticulture bureau supervision, 3) Seed laboratory management
	- Food Security	1) Food availability and institutional, 2) Price information & evaluation, 3) Food & nutrition vigilance, 4) Intensification
- Dinas Marine & Fishery	- Fishery	1) Fishery culture & seeding, 2) Fishery structure & infrastructure, 3) Production & quality improvement
	- Water	1) Capture fishery & other sea products, 2) Marine open water & fresh open water aquaculture, 3) Fish auction market management and marketing
	- Supervision and Protection	1) Marine resources protection, 2) Supervision of fish catching & other sea products, 3) Legal permission

4. Gowa

Dinas	Sub-Dinas	Section
- Dinas Food Crops & Horticulture	- Paddy & Palawija Production	1) Development of paddy & palawija production, 2) Seed & seedling production of paddy & palawija, 3) Technology service for paddy & palawija, 4) Development of machine & production equipment
	- Horticulture Production	1) Development of horticulture, 2) Technology preparation for horticulture, 3) Seed & seedling production on horticultural crops
	- Rehabilitation, Land Development & Crop Protection	1) Rehabilitation & land development, 2) Climate assessments & water use, 3) Monitoring of incidence of pest and disease, 4) Pest & disease control and pesticide supervision
	- Farming Operation & Processing Management	1) Market information, 2) Resource utilization, 3) Post harvest, yield processing & agribusiness
- Dinas Estate Crops		
- Dinas Livestock		
- Dinas Marine & Fishery	- Aquaculture & Capture Fishery	1) Fresh water aquaculture, 2) Brackish water aquaculture, 3) Capture fishery, 4) Structure & facilities of capture fishery
	- Institutional management	1) Business management, 2) Farmers & fishermen institution management, 3) Quality control & marketing
- Agriculture & Forestry Information & Extension Office		

Table 2.4.1 List of Dinas and Office for Agriculture and Fisheries in 8 Kabupatens in South Sulawesi Province (3/4)

5. Pangkep

Dinas	Sub-Dinas	Section
- Dinas Food Crops & Livestock 41 staff	- Production	1) Production technology, 2) Production development, 3) Land intensification
	- Extension Services	1) Extension services, 2) institutional employment & structure, 3) Farmers group
	- Business & Capital	1) Service & business, 2) Process & marketing, 3) Machine & equipment
	- Land Rehabilitation and Crop Protection	1) Resources & utilization, 2) Land rehabilitation & development, 3) Land protection
	- Husbandry	1) Distribution & development of husbandry, 2) Disease protection & control, 3) Feed & pasture
- Dinas Fishery & Marine 23 staff	- Aquaculture Sector	1) Structure & infrastructure for aquaculture, 2) Aquaculture production & technology
	- Capture Fishery Sector	1) Capture fishery structure & infrastructure, 2) Capture fishery production & technology
	- Institutional & Marketing Sector	1) Institutional management, 2) Quality & marketing management
	- Protection Sector	1) Control & quarantine, 2) Sea

6. Wajo

Dinas	Sub-Dinas	Section
- Dinas Agriculture 174 staff	- Food Crops & Horticulture	1) Seed & seedling cultivation, 2) Area & land development, 3) Production, 3) Plant protection
	- Livestock Farming	1) Seed & development, 2) Large & small livestock, 3) Poultry, 4) Animal health
	- Horticulture	1) Cultivation development, 2) Rehabilitation & intensification, 3) Horticultural industry, 4) Horticulture crop protection
	- Extension & Agribusiness	1) Institutionalizing & human resources development, 2) Licensing, 3) Structure & infrastructure
- Dinas Fisheries & Marine 29 staff	- Production & Structure	1) Aquaculture, capture fishery & resources, 2) Fishery & marine infrastructure
	- Enterprise Direction, Supervision & Protection	1) Institutionalization of fishermen & fish farmer economy, 2) Licensing, marketing & quality, 3) Supervision & protection of fishery & marine resources
- Food Security Office		

Table 2.4.1 List of Dinas and Office for Agriculture and Fisheries in 8 Kabupatens in South Sulawesi Province (4/4)

7. Mamuju

Dinas	Sub-Dinas	Section
- Dinas Agriculture & Livestock 59 staff	- Food Crops & Horticulture Production	1) Seeds of food crops & horticulture, 2) Application technology & pest disease, 3) Farm management & processing, 4) Financial & institutional food crops
	- Infrastructure for Food Security	1) Machine & equipment, 2) Land development & water use, 3) Agriculture production infrastructure, 4) Food prices & structure distribution
	- Livestock Production & Business	1) Production & business management, 2) Structure for livestock production, 3) Legal permit & marketing, 4) Food safety & nutrition
	- Animal Health & Veterinary Community	1) Mapping & information, 2) Protection & control, 3) Health of veterinary community, 4) Food diversification
- Dinas Fisheries & Marine 28 staff	- Aquaculture	1) Marine aquaculture, 2) Pest & quarantine, 3) Structure & infrastructure for aquaculture
	- Capture Fishery and Islands	1) Capture technology & fishery motor boat, 2) Capture fishery structure & infrastructure, 3) Seashore & archipelago development
	- Management & Control	1) Cooperative management, 2) Quality production & marketing management, 3) Protection & rehabilitation of fish resources
- Agricultural & Forestry Information & Extension Office		

8. Luwu

Dinas	Sub-Dinas	Section
- Dinas Agriculture & Livestock	- Food Crops & Horticulture	1) Paddy & cereal production, 2) Management & processing, 3) Rehabilitation, tillage & production, 4) Management & processing production
	- Livestock	1) Livestock production, 2) Management & processing, 3) Health of veterinary distribution & husbandry development
	- Food Security	1) Structure & institution, 2) Distribution & food price, 3) Food security & nutrition, 4) Food safety & food security
	- Forest Protection & Security	1) Forest security, 2) Forest guard, 3) Service & law, 4) Pest & disease control & forest fire
	- Information & Services	1) Education, 2) Information of technology services, 3) Information services, 4) Services for farmers
- Dinas Fisheries & Marine	- Fishery	1) Fishery & general aquaculture, 2) Fishery technology development, 3) Aquaculture structure & infrastructure, 4) Quality & marketing supervision
	- Marine	1) Fish catching & ship technology, 2) Capture structure & infrastructure, 3) Coastal area development & marine services, 4) Protection, supervision & control
	- Information & Extension	1) Education & training, 2) Information services & extension technology review, 3) Extension empowerment

Source: Survey Work on Decentralization Status in Kabupaten Level of South Sulawesi Province, 2003.

Table 2.4.2 Revenue of Kabupaten

(unit: Rp.million)

	2001		2002		2003		Growth rate 02/01	Growth rate 03/02
1. Kab. Selayar								
1. Carry-over	1,125.9	1.4%	4,068.1	3.5%	2,855.0	2.0%	-	-
2. PAD	1,807.3	2.2%	2,885.2	2.5%	7,310.0	5.2%	59.6%	153.4%
3. Counter Balance Fund	76,373.2	94.0%	102,197.2	87.9%	126,334.2	89.3%	33.8%	23.6%
4. Loan	0.0	0.0%	3,500.0	3.0%	0.0	0.0%	-	-
5. Other Revenue	1,927.2	2.4%	3,671.1	3.2%	4,983.8	3.5%	-	-
Total	81,233.6	100.0%	116,321.6	100.0%	141,483.0	100.0%	43.2%	21.6%
2. Kab. Bulukumba								
1. Carry-over	2,303.7	1.6%	1,552.5	0.9%	6,864.1	3.1%	-	-
2. PAD	6,843.4	4.9%	9,435.8	5.4%	12,075.5	5.5%	37.9%	28.0%
3. Counter Balance Fund	130,479.2	93.4%	162,943.9	93.7%	194,649.2	88.9%	24.9%	19.5%
4. Loan	0.0	0.0%	0.0	0.0%	0.0	0.0%	-	-
5. Other Revenue	0.0	0.0%	0.0	0.0%	5,440.2	2.5%	-	-
Total	139,626.3	100.0%	173,932.2	100.0%	219,029.0	100.0%	24.6%	25.9%
3. Kab. Jenepont								
1. Carry-over	243.1	0.2%	7,086.5	4.3%	812.9	0.5%	-	-
2. PAD	5,013.1	4.4%	7,066.6	4.2%	7,645.7	4.3%	41.0%	8.2%
3. Counter Balance Fund	101,433.6	90.0%	151,915.7	91.3%	157,474.5	88.3%	49.8%	3.7%
4. Loan	5,792.0	5.1%	0.0	0.0%	0.0	0.0%	-	-
5. Other Revenue	192.9	0.2%	260.9	0.2%	12,392.8	6.9%	-	-
Total	112,674.7	100.0%	166,329.7	100.0%	178,325.9	100.0%	47.6%	7.2%
4. Kab. Gowa								
1. Carry-over	5,698.0	3.1%	3,423.9	1.5%	8,547.8	3.1%	-	-
2. PAD	8,592.3	4.7%	15,331.5	6.7%	22,714.0	8.2%	78.4%	48.2%
3. Counter Balance Fund	166,845.0	91.8%	188,365.2	82.2%	225,072.8	81.3%	12.9%	19.5%
4. Loan	0.0	0.0%	15,000.0	6.5%	0.0	0.0%	-	-
5. Other Revenue	625.4	0.3%	7,011.0	3.1%	20,405.8	7.4%	-	-
Total	181,760.7	100.0%	229,131.6	100.0%	276,740.4	100.0%	26.1%	20.8%
5. Kab. Pangkep								
1. Carry-over	428.2	0.3%	7,217.7	4.2%	9,244.9	4.3%	-	-
2. PAD	19,060.3	15.0%	22,427.8	13.1%	24,641.7	11.5%	17.7%	9.9%
3. Counter Balance Fund	105,527.8	82.9%	134,501.1	78.3%	168,188.2	78.8%	27.5%	25.0%
4. Loan	0.0	0.0%	0.0	0.0%	0.0	0.0%	-	-
5. Other Revenue	2,274.7	1.8%	7,637.4	4.4%	11,288.0	5.3%	-	-
Total	127,291.0	100.0%	171,784.0	100.0%	213,362.8	100.0%	35.0%	24.2%
6. Kab. Wajo								
1. Carry-over	3,153.3	2.4%	6,184.3	3.4%	30,252.7	11.7%	-	-
2. PAD	8,371.3	6.4%	11,555.8	6.4%	12,789.4	4.9%	38.0%	10.7%
3. Counter Balance Fund	117,620.9	90.1%	155,993.2	87.0%	202,462.4	78.2%	32.6%	29.8%
4. Loan	1,132.0	0.9%	0.0	0.0%	0.0	0.0%	-	-
5. Other Revenue	329.7	0.3%	5,636.1	3.1%	13,371.3	5.2%	-	-
Total	130,607.2	100.0%	179,369.4	100.0%	258,875.8	100.0%	37.3%	44.3%
7. Kab. Mamuju								
1. Carry-over	3,449.4	2.7%	872.2	0.4%	8,792.5	4.0%	-	-
2. PAD	5,563.4	4.3%	7,548.8	3.9%	8,852.7	4.0%	35.7%	17.3%
3. Counter Balance Fund	120,378.9	92.7%	178,041.6	91.8%	183,321.3	83.4%	47.9%	3.0%
4. Loan	0.0	0.0%	0.0	0.0%	0.0	0.0%	-	-
5. Other Revenue	529.5	0.4%	7,528.5	3.9%	18,891.9	8.6%	-	-
Total	129,921.2	100.0%	193,991.1	100.0%	219,858.4	100.0%	49.3%	13.3%
8. Kab. Luwu								
1. Carry-over	7,275.0	4.1%	12,930.9	6.1%	0.0	0.0%	-	-
2. PAD	8,444.9	4.7%	10,134.7	4.8%	2,097.3	2.1%	20.0%	-79.3%
3. Counter Balance Fund	156,378.5	87.4%	184,944.7	87.0%	97,226.9	97.7%	18.3%	-47.4%
4. Loan	0.0	0.0%	0.0	0.0%	0.0	0.0%	-	-
5. Other Revenue	6,759.6	3.8%	4,524.0	2.1%	143.8	0.1%	-	-
Total	178,858.0	100.0%	212,534.3	100.0%	99,468.0	100.0%	18.8%	-53.2%

Note: Kab. Luwu North was separated from Kab. Luwu in 2002, and therefore, 2003 revenue in Kab. Luwu was smaller than the previous year.

Source: Survey Work on Decentralization Status in Kabupaten Level of South Sulawesi Province, 2003.

Table 2.4.3 Expenditure of Kabupaten in 2001 and 2002

(unit: Rp.million)

Kabupaten	(a) Total Expenditure		(b) Current Expenditure		(c) Development Expenditure		(d) Agriculture & Forestry		(e) Irrigation & Water Resources	
	2001	2002	2001	2002	2001	2002	2001	2002	2001	2002
Selayar	77,170	109,320	50,710	62,960	26,460	46,360	1,240	990	50	860
(Propotion)	100.0%	100.0%	65.7%	57.6%	34.3%	42.4%	4.7%	2.1%	0.2%	1.9%
Bulukumba	138,070	167,070	115,150	134,310	22,920	32,760	1,250	2,480	300	700
(Propotion)	100.0%	100.0%	83.4%	80.4%	16.6%	19.6%	5.5%	7.6%	1.3%	2.1%
Jenepont	108,570	165,520	84,050	115,250	24,520	50,270	450	7,230	30	2,180
(Propotion)	100.0%	100.0%	77.4%	69.6%	22.6%	30.4%	1.8%	14.4%	0.1%	4.3%
Gowa	178,840	220,340	129,510	145,950	49,330	74,390	3,700	6,370	1,510	1,370
(Propotion)	100.0%	100.0%	72.4%	66.2%	27.6%	33.8%	7.5%	8.6%	3.1%	1.8%
Pangkep	120,070	160,470	88,600	96,570	31,470	63,900	1,410	900	50	150
(Propotion)	100.0%	100.0%	73.8%	60.2%	26.2%	39.8%	4.5%	1.4%	0.2%	0.2%
Wajo	124,420	149,120	100,870	114,860	23,550	34,260	640	1,080	400	950
(Propotion)	100.0%	100.0%	81.1%	77.0%	18.9%	23.0%	2.7%	3.2%	1.7%	2.8%
Mamuju	129,050	185,200	77,560	88,210	51,490	96,990	1,710	8,140	1,570	4,570
(Propotion)	100.0%	100.0%	60.1%	47.6%	39.9%	52.4%	3.3%	8.4%	3.0%	4.7%
Luwu	157,030	181,380	113,160	134,880	43,870	46,500	2,830	1,940	3,020	380
(Propotion)	100.0%	100.0%	72.1%	74.4%	27.9%	25.6%	6.5%	4.2%	6.9%	0.8%
Total	1,033,220	1,338,420	759,610	892,990	273,610	445,430	13,230	29,130	6,930	11,160
(Propotion)	100.0%	100.0%	73.5%	66.7%	26.5%	33.3%	4.8%	6.5%	2.5%	2.5%

Note: (a) = (b) + (c)
Proportion: (b) & (c) are against (a), (d) & (e) against (c).
Source: Survey Work on Decentralization Status in Kabupaten Level of South Sulawesi Province, 2003.

Table 3.1.1 Land Use by Province (1/3, 2000)

(unit: ha)

Province	Wet Land*1	House Compound	Garden Dry field	Shifting Cultivation	Grass Land	Swamps	Dyke	Pond	Temporary Fallow Land	Private Wood Land	Estates	Total
Sumatra												
1 Naggroe Aceh Darussalam	300,128	304,865	482,347	299,282	200,198	143,128	40,988	15,359	241,075	255,305	618,449	2,901,124
2 North Sumatra	517,483	322,518	503,590	253,680	189,865	119,354	11,497	6,452	377,350	626,452	1,870,299	4,798,540
3 West Sumatra	230,696	109,211	365,367	141,946	29,516	86,206	1,388	9,066	77,661	603,646	507,043	2,161,746
4 Riau	118,187	331,467	485,181	93,291	24,275	286,101	33,265	3,626	427,762	351,437	1,919,101	4,073,693
5 Jambi	142,980	138,715	354,661	211,084	20,911	99,911	355	3,907	204,155	313,785	1,243,828	2,734,292
6 South Sumatra	430,454	279,769	336,355	265,065	54,644	936,168	17,910	24,927	383,949	970,322	1,824,980	5,524,543
7 Bengkulu	81,259	79,105	203,628	78,629	11,723	25,635	253	2,525	181,862	209,404	321,210	1,195,233
8 Lampung	288,612	257,552	507,036	336,579	4,039	82,949	11,061	3,042	137,804	91,203	577,625	2,297,502
9 Bangka Belitung	2,440	79,434	117,695	21,328	6,588	102,313	4,656	192	240,668	265,680	267,550	1,108,544
Total	**2,112,239**	**1,902,636**	**3,355,860**	**1,700,884**	**541,759**	**1,881,765**	**121,373**	**69,096**	**2,272,286**	**3,687,234**	**9,150,085**	**26,795,217**
Java												
1 DKI Jakarta	2,895	14,996	1,882	33	75	519	60	122	715	168	0	21,465
2 West Java	944,002	402,264	667,619	133,589	29,861	25,070	33,591	28,035	16,747	209,446	297,035	2,787,259
3 Central Java	991,154	580,079	755,394	5,889	6,322	6,604	33,970	2,351	2,844	78,211	90,791	2,553,609
4 DI. Yogyakarta	58,834	86,054	99,263	322	0	8	20	642	991	23,586	113	269,833
5 East Java	1,154,536	598,277	1,160,249	31,876	1,801	7,514	58,482	1,570	18,984	97,844	159,299	3,290,432
6 Banten	192,970	92,423	176,226	80,028	2,353	2,817	6,242	2,552	25,132	48,342	53,320	682,405
Total	**3,344,391**	**1,774,093**	**2,860,633**	**251,737**	**40,412**	**42,532**	**132,365**	**35,272**	**65,413**	**457,597**	**600,558**	**9,605,003**
Bali & Nusa Tenggara												
1 Bali	85,128	43,575	129,429	0	2	27	671	146	489	12,266	127,465	399,198
2 West Nusa Tenggara	198,485	31,889	170,289	42,481	37,698	958	5,121	2,854	161,381	246,452	36,458	934,066
3 East Nusa Tenggara	114,233	168,958	401,531	329,790	704,252	3,907	1,685	2,214	709,318	394,125	317,252	3,147,265
Total	**397,846**	**244,422**	**701,249**	**372,271**	**741,952**	**4,892**	**7,477**	**5,214**	**871,188**	**652,843**	**481,175**	**4,480,529**
Kalimantan												
1 West Kalimantan	279,495	253,718	523,837	281,930	22,841	355,599	4,611	8,704	1,697,658	1,416,986	1,676,845	6,522,224
2 Central Kalimantan	177,810	243,699	305,138	151,215	130,605	714,185	3,993	3,450	1,763,980	387,940	1,164,443	5,046,458
3 South Kalimantan	402,935	167,202	191,143	146,167	174,949	173,914	8,380	8,288	747,443	195,024	496,460	2,711,905
4 East Kalimantan	108,187	146,182	115,400	143,562	32,720	1,062,759	53,187	7,659	1,269,664	733,886	847,844	4,521,050
Total	**968,427**	**810,801**	**1,135,518**	**722,874**	**361,115**	**2,306,457**	**70,171**	**28,101**	**5,478,745**	**2,733,836**	**4,185,592**	**18,801,637**
Sulawesi												
1 North Sulawesi	56,197	36,123	189,097	132,131	990	12,432	12,006	3,265	44,700	64,304	294,314	845,559
2 Central Sulawesi	133,593	100,833	202,338	182,329	153,356	45,571	8,216	5,214	505,521	396,120	874,291	2,607,382
3 South Sulawesi	684,545	201,813	558,501	153,971	288,302	49,353	129,880	34,610	190,494	526,521	626,044	3,444,034
4 Southeast Sulawesi	67,593	126,961	206,555	83,963	61,423	54,719	10,924	3,176	259,449	256,851	401,273	1,532,887
5 Gorontalo	22,508	36,849	81,606	45,767	19,614	8,190	506	497	32,619	27,964	101,275	377,395
Total	**964,436**	**502,579**	**1,238,097**	**598,161**	**523,685**	**170,265**	**161,532**	**46,762**	**1,032,783**	**1,271,760**	**2,297,197**	**8,807,257**
27 Grand Total	**7,787,339**	**5,234,531**	**9,291,357**	**3,645,927**	**2,208,923**	**4,405,911**	**492,918**	**184,445**	**9,720,415**	**8,803,270**	**16,714,607**	**68,489,643**

Note: Wet land includes verious types of paddy field such as irrigated, rainfed, vally, swamp and others. The above area does not include forest land, road, river, lake, aquaduct, sportfiled, fallowland, etc.

Source: Agricultural Survey, Land Area by Utilization in Indonesia 2000, Central Bureau of Statistics, December 2001. (Publication Number 05110.0106, BPS Catalogue 5232)

Table 3.1.1 Land Use by Province (2/3, 2001)

(unit: ha)

Province	Wet Land*1	House Compound	Garden Dry field	Shifting Cultivation	Grass Land	Swamps	Dyke	Pond	Temporary Fallow Land	Private Wood Land	Estates	Total
Sumatra												
1 Naggroe Aceh Darussalam	288,574	282,893	408,885	255,902	130,082	193,516	40,836	16,411	177,813	204,314	679,829	2,679,055
2 North Sumatra	524,649	478,363	724,849	293,139	270,595	220,387	19,669	9,984	485,367	746,483	2,764,725	6,538,210
3 West Sumatra	229,641	109,222	318,338	101,181	25,672	35,886	262	44,480	74,979	1,069,687	509,775	2,519,123
4 Riau	111,935	382,373	547,873	115,001	19,354	305,942	3,019	3,763	272,718	121,762	1,886,746	3,770,486
5 Jambi	141,245	141,685	334,056	186,197	17,942	87,972	377	3,770	231,906	256,923	1,281,983	2,684,056
6 South Sumatra	439,668	281,817	348,200	255,872	41,952	873,187	18,427	16,351	334,219	1,032,837	1,757,694	5,400,224
7 Bengkulu	83,113	80,560	211,041	78,188	13,136	25,706	388	2,920	185,102	180,397	363,164	1,223,715
8 Lampung	278,135	269,055	709,874	152,394	7,735	88,973	8,851	3,612	93,339	205,202	635,374	2,452,544
9 Bangka Belitung	979	67,893	107,253	11,190	8,041	126,868	28	97	81,406	278,951	217,839	900,545
Total	**2,097,939**	**2,093,861**	**3,710,369**	**1,449,064**	**534,509**	**1,958,437**	**91,857**	**101,388**	**1,936,849**	**4,096,556**	**10,097,129**	**28,167,958**
Java												
1 DKI Jakarta	2,816	14,437	1,901	33	21	806	157	23	479	162	0	20,835
2 West Java	924,871	395,875	620,324	143,225	27,893	20,702	21,439	30,423	17,788	195,858	290,502	2,688,900
3 Central Java	991,251	582,662	763,735	5,769	3,687	6,300	33,038	2,232	2,686	62,547	86,954	2,540,861
4 DI. Yogyakarta	58,542	86,125	99,183	322	0	8	22	571	782	30,294	204	276,053
5 East Java	1,159,592	604,663	1,151,928	59,249	3,927	8,116	60,379	2,384	19,088	135,234	164,471	3,369,031
6 Banten	202,046	100,337	185,273	75,947	2,422	2,719	7,719	4,609	26,059	52,809	53,543	713,483
Total	**3,339,118**	**1,784,099**	**2,822,344**	**284,545**	**37,950**	**38,651**	**122,754**	**40,242**	**66,882**	**476,904**	**595,674**	**9,609,163**
Bali & Nusa Tenggara												
1 Bali	85,525	45,673	122,988	0	2	115	583	269	1,342	11,076	126,440	394,013
2 West Nusa Tenggara	214,576	35,464	187,745	49,520	37,943	1,094	7,728	2,473	76,772	178,027	972,123	1,763,465
3 East Nusa Tenggara	113,276	157,011	441,958	307,636	736,981	2,745	2,139	1,936	707,927	414,158	285,539	3,171,306
Total	**413,377**	**238,148**	**752,691**	**357,156**	**774,926**	**3,954**	**10,450**	**4,678**	**786,041**	**603,261**	**1,384,102**	**5,328,784**
Kalimantan												
1 West Kalimantan	287,013	255,290	459,525	237,195	24,730	351,013	5,002	17,965	1,700,038	1,451,804	1,670,491	6,460,066
2 Central Kalimantan	182,556	224,940	323,511	160,372	133,857	597,786	27,191	3,691	2,199,875	461,574	1,357,775	5,673,128
3 South Kalimantan	415,828	169,195	178,176	128,896	146,595	150,911	8,456	2,562	216,969	187,550	442,045	2,047,183
4 East Kalimantan	106,768	174,160	134,512	141,976	37,560	841,460	36,105	11,891	1,393,614	1,518,338	2,369,566	6,765,950
Total	**992,165**	**823,585**	**1,095,724**	**668,439**	**342,742**	**1,941,170**	**76,754**	**36,109**	**5,510,496**	**3,619,266**	**5,839,877**	**20,946,327**
Sulawesi												
1 North Sulawesi	61,205	40,298	331,120	111,000	7,624	8,592	3,115	1,909	44,751	66,862	296,931	973,407
2 Central Sulawesi	128,023	89,507	327,293	140,096	105,327	31,042	5,324	1,164	448,440	530,369	640,161	2,446,746
3 South Sulawesi	661,273	172,037	564,367	144,970	276,730	46,185	122,155	10,949	243,533	431,861	551,935	3,225,995
4 Southeast Sulawesi	64,075	138,034	207,749	81,629	65,593	38,679	14,070	2,045	272,711	246,798	402,581	1,533,964
5 Gorontalo	22,508	36,849	81,606	45,767	19,614	8,190	506	497	32,619	27,964	101,275	377,395
Total	**937,084**	**476,725**	**1,512,135**	**523,462**	**474,888**	**132,688**	**145,170**	**16,564**	**1,042,054**	**1,303,854**	**1,992,883**	**8,557,507**
27 Grand Total	**7,779,683**	**5,416,418**	**9,893,263**	**3,282,666**	**2,165,015**	**4,074,900**	**446,985**	**198,981**	**9,342,322**	**10,099,841**	**19,909,665**	**72,609,739**

Note: Wet land includes verious types of paddy field such as irrigated, rainfed, vally, swamp and others. The above area does not include forest land, road, river, lake, aquaduct, sportfiled, fallowland, etc.

Source: Agricultural Survey, Land Area by Utilization in Indonesia 2001, Central Bureau of Statistics, December 2002. (Publication Number 05110.0301, BPS Catalogue 5232)

Table 3.1.1 Land Use by Province (3/3, 2002)

(unit: ha)

Province	Wet Land*1	House Compound	Garden Dry field	Shifting Cultivation	Grass Land	Swamps	Dyke	Pond	Temporary Fallow Land	Private Wood Land	Estates	Total
Sumatra												
1 Naggroe Aceh Darussalam	288,574	282,893	408,885	255,902	130,082	193,516	40,836	16,411	177,813	204,314	679,829	2,679,055
2 North Sumatra	471,249	209,910	373,380	233,951	106,611	91,328	15,544	4,628	231,475	280,891	1,388,367	3,407,334
3 West Sumatra	244,406	115,054	326,448	146,748	26,634	58,904	4,532	8,314	94,111	592,070	552,158	2,169,379
4 Riau	111,935	382,373	547,873	115,001	19,354	305,942	3,019	3,763	272,718	121,762	1,886,746	3,770,486
5 Jambi	128,069	137,171	408,706	181,788	27,922	103,240	619	3,589	294,903	219,829	1,281,949	2,787,785
6 South Sumatra	459,240	279,923	344,712	253,331	42,521	873,057	17,510	16,769	351,204	1,031,159	1,709,819	5,379,245
7 Bengkulu	88,362	82,870	208,635	83,758	30,587	26,354	421	12,920	181,257	138,602	368,942	1,222,708
8 Lampung	310,812	256,106	727,856	104,535	10,256	50,097	14,956	4,022	97,198	122,591	549,809	2,248,238
9 Bangka Belitung	1,815	67,020	106,627	11,353	8,031	127,147	195	92	81,444	278,951	217,759	900,434
Total	**2,104,462**	**1,813,320**	**3,453,122**	**1,386,367**	**401,998**	**1,829,585**	**97,632**	**70,508**	**1,782,123**	**2,990,169**	**8,635,378**	**24,564,664**
Java												
1 DKI Jakarta	2,866	14,437	1,901	0	21	806	157	23	479	162	0	20,852
2 West Java	913,355	391,786	614,979	172,218	32,639	12,504	40,006	24,353	20,326	201,512	309,518	2,733,196
3 Central Java	985,810	574,620	759,931	8,391	3,098	5,549	34,990	2,412	2,633	66,415	75,386	2,519,235
4 DI. Yogyakarta	58,253	84,936	97,346	322	148	8	20	573	772	31,385	1,015	274,778
5 East Java	1,147,007	598,438	1,137,203	32,898	1,420	8,828	62,295	2,050	6,509	171,050	158,837	3,326,535
6 Banten	209,286	109,430	191,160	74,257	10,650	3,851	7,715	5,330	28,286	61,715	48,422	750,102
Total	**3,316,577**	**1,773,647**	**2,802,520**	**288,086**	**47,976**	**31,546**	**145,183**	**34,741**	**59,005**	**532,239**	**593,178**	**9,624,698**
Bali & Nusa Tenggara												
1 Bali	82,238	44,699	128,594	0	2	115	580	280	458	11,923	127,173	396,062
2 West Nusa Tenggara	218,496	36,321	198,205	53,895	37,163	1,267	8,266	2,280	58,955	117,601	40,781	773,230
3 East Nusa Tenggara	117,813	180,538	465,014	307,477	763,103	2,844	2,369	1,858	686,473	354,249	304,018	3,185,756
Total	**418,547**	**261,558**	**791,813**	**361,372**	**800,268**	**4,226**	**11,215**	**4,418**	**745,886**	**483,773**	**471,972**	**4,355,048**
Kalimantan												
1 West Kalimantan	299,381	275,239	466,712	242,003	25,051	358,561	4,978	18,376	1,710,023	1,472,450	1,701,535	6,574,309
2 Central Kalimantan	168,717	321,871	503,622	254,347	34,217	485,576	4,447	402,684	1,287,513	630,815	1,665,661	5,759,470
3 South Kalimantan	420,377	174,418	183,719	117,185	141,169	195,231	8,682	2,529	230,924	193,592	466,997	2,134,823
4 East Kalimantan	119,950	208,171	224,131	216,698	60,419	1,217,643	71,375	17,844	1,787,289	531,706	913,401	5,368,627
Total	**1,008,425**	**979,699**	**1,378,184**	**830,233**	**260,856**	**2,257,011**	**89,482**	**441,433**	**5,015,749**	**2,828,563**	**4,747,594**	**19,837,229**
Sulawesi												
1 North Sulawesi	63,871	39,654	253,520	101,578	7,202	10,397	3,105	1,808	44,386	69,288	268,666	863,475
2 Central Sulawesi	120,960	82,871	356,154	198,454	160,051	27,079	8,605	2,712	417,468	655,865	609,737	2,639,956
3 South Sulawesi	628,519	181,086	560,362	170,705	273,125	41,065	107,191	10,092	163,385	472,711	567,158	3,175,399
4 Southeast Sulawesi	65,060	143,700	190,737	89,399	69,719	42,836	14,136	2,259	277,325	266,987	407,971	1,570,129
5 Gorontalo	22,427	35,883	82,324	69,061	20,476	7,616	1,779	214	29,292	30,177	80,580	379,829
Total	**900,837**	**483,194**	**1,443,097**	**629,197**	**530,573**	**128,993**	**134,816**	**17,085**	**931,856**	**1,495,028**	**1,934,112**	**8,628,788**
27 Grand Total	**7,748,848**	**5,311,418**	**9,868,736**	**3,495,255**	**2,041,671**	**4,251,361**	**478,328**	**568,185**	**8,534,619**	**8,329,772**	**16,382,234**	**67,010,427**

Note: Wet land includes verious types of paddy field such as irrigated, rainfed, vally, swamp and others. The above area does not include forest land, road, river, lake, aquaduct, sportfiled, fallowland, etc.

Source: Agricultural Survey, Land Area by Utilization in Indonesia 2002, Central Bureau of Statistics, December 2003. (Publication Number 05110.0308, BPS Catalogue 5232)

Table 3.1.2 Transition of Land Utilization

(Unit:ha)

	4 years from 1995 to 1998					4 years from 1999 to 2002					Balance	
	1995*	1996*	1997*	1998*	Average	1999*	2000*	2001*	2002**	Average	2002-1995	Average 4 years
Wet Land	8,484,700	8,519,100	8,490,000	8,504,900	**8,500,000**	8,106,400	7,787,300	7,779,700	7,748,800	**7,856,000**	**-735,900**	**-644,000**
House Compounds and Surroundings	5,155,400	5,291,400	5,331,500	5,516,400	**5,324,000**	5,131,700	5,234,500	5,416,400	5,311,400	**5,274,000**	**156,000**	**-50,000**
Dry Land / Garden	8,244,900	8,383,600	8,382,300	8,568,700	**8,395,000**	9,136,700	9,291,400	9,893,263	9,868,700	**9,548,000**	**1,623,800**	**1,153,000**
Shifting Cultivation	3,123,600	3,179,200	3,225,900	3,247,200	**3,194,000**	3,632,000	3,645,900	3,282,700	3,495,300	**3,514,000**	**371,700**	**320,000**
Meadows	1,889,400	1,953,100	2,056,300	2,017,000	**1,979,000**	2,424,500	2,208,900	2,165,000	2,041,700	**2,210,000**	**152,300**	**231,000**
Swamps	3,883,000	4,172,900	4,270,500	4,268,700	**4,149,000**	4,080,200	4,405,900	4,074,900	4,251,400	**4,203,000**	**368,400**	**54,000**
Dyke	422,600	438,500	467,300	481,300	**452,000**	454,300	492,900	447,000	478,300	**468,000**	**55,700**	**16,000**
Water Pond	182,200	183,900	168,700	168,400	**176,000**	188,600	184,400	199,000	568,200	**285,000**	**386,000**	**109,000**
Fallow Land	6,967,900	7,335,600	7,577,900	7,720,300	**7,400,000**	10,260,500	9,720,400	9,342,300	8,534,600	**9,464,000**	**1,566,700**	**2,064,000**
Wood Land	9,555,000	9,446,100	9,133,600	9,072,400	**9,302,000**	8,905,200	8,803,300	10,099,800	8,329,800	**9,035,000**	**-1,225,200**	**-267,000**
Agricultural Estates	13,835,700	14,488,400	15,016,000	16,461,000	**14,950,000**	16,543,700	16,714,600	19,909,700	16,382,200	**17,388,000**	**2,546,500**	**2,438,000**
Total	**61,744,400**	**63,391,800**	**64,120,000**	**66,026,300**	**63,821,000**	**68,863,800**	**68,489,500**	**72,609,763**	**67,010,400**	**69,245,000**	**5,266,000**	**5,424,000**

Source: *) Agricultural Statistics. 2001, 2002, 2003
**) Agriculture Survey, Land Area by Utilization in Indonesia 2002, BPS

Table 3.1.3 Population and Density by Province

Province	Population [1] (000 persons)						Population Density (persons/square km)		
	1990 [2]		2000 [3]		2003 [4]		1990 [2]	2000 [3]	2003 [4]
1. Nanggroe Aceh Darussalam	3,416		3,929		4,240		66	76	81
2. Sumatera Utara	10,252		11,642		11,923		139	158	162
3. Sumatera Barat	4,000		4,249		4,476		93	99	104
4. Riau	3,279		4,948		5,596		35	52	59
5. Jambi	2,018		2,407		2,583		38	45	48
6. Sumatera Selatan	5,492		6,899		6,522		68	74	70
7. Bengkulu	1,179		1,564		1,525		60	79	77
8. Lampung	6,016		6,731		6,963		170	191	196
9. Kep. Bangka Belitung [5]	820		900		988		0	56	61
Sumatera	**36,472**	**20.43%**	**43,269**	**21.0%**	**44,816**	**21%**	**76**	**90**	**93**
10. DKI Jakarta	8,228		8,361		8,640		12,439	12,635	12,985
11. Jawa Barat	29,414		35,724		38,138		1,023	1,033	1,100
12. Jawa Tengah	28,516		31,223		32,175		876	959	987
13. DI. Yogyakarta	2,913		3,121		3,211		914	980	1,007
14. Jawa Timur	32,488		34,766		36,270		678	726	756
15. Banten [5]	5,968		8,098		8,999		0	936	1,038
Jawa	**107,527**	**60.24%**	**121,293**	**58.9%**	**127,433**	**59.2%**	**843**	**951**	**997**
16. Bali	2,777		3,150		3,363		493	559	596
17. NTB	3,369		4,009		4,025		167	199	199
18. NTT	3,268		3,823		4,094		69	83	86
Bali & Nusa Tenggara	**9,414**	**5.27%**	**10,982**	**5.3%**	**11,482**	**5.3%**	**139**	**152**	**157**
19. Kalimantan Barat	3,228		4,016		3,969		22	27	27
20. Kalimantan Tengah	1,396		1,855		1,838		9	12	12
21. Kalimantan Selatan	2,597		2,984		3,188		60	69	73
22. Kalimantan Timur	1,875		2,452		2,720		8	11	12
Kalimantan	**9,096**	**5.10%**	**11,307**	**5.5%**	**11,715**	**5.4%**	**16**	**20**	**20**
23. Sulawesi Utara	1,762		2,001		2,136		162	132	140
24. Sulawesi Tengah	1,703		2,176		2,221		27	35	35
25. Sulawesi Selatan	6,981		8,051		8,253		112	129	132
26. Sulawesi Tenggara	1,349		1,820		1,887		35	48	49
27. Gorontalo [5]	716		833		885		0	68	72
Sulawesi	**12,511**	**7.01%**	**14,881**	**7.2%**	**15,382**	**7.1%**	**65**	**78**	**80**
28. Maluku	1,154		1,163		1,224		40	26	26
29. Maluku Utara [6]	699		732		858		0	25	28
30. Papua	1,630		2,214		2,366		5	6	6
Maluku & Papua	**3,483**	**1.95%**	**4,109**	**2.0%**	**4,448**	**2.1%**	**8**	**9**	**10**
Whole Country	**178,503**	**100%**	**205,841**	**100%**	**215,276**	**100%**	**95**	**109**	**114**

Source: Table 3.1.1 and 3.1.2 Statistical Year Book of Indonesia 2003

1) Excluding population without permanent residence.
2) Based on 1990 population census.
3) Including 2,283,981 persons (non responed), and 2,317,216 persons (estimation), based on 2000 population census.
4) Estimation Figures June 2003,based on voter and population registration (April 2003).
5) Kep. Bangka Belitung, Gorontalo and Banten were formed in 2000.
6) Maluku Utara was formed in 1999.

Table 3.1.4 Number of Households by Land Holding Size

(Unit : No. of Households)

Rural	Area of Agricultural land Owned (ha)									
Province	Not Own	< 0.10	0.10 - 0.24	0.25 - 0.49	0.50 - 0.74	0.75 - 0.99	1.00 - 1.24	1.25 - 1.99	> 2.00	Total
1 DI. Aceh	194,631	6,695	46,941	84,392	92,647	30,656	82,951	45,792	73,778	658,483
2 Sumatera Utara	490,768	24,975	95,457	139,242	158,671	70,487	162,376	96,882	177,026	1,415,884
3 Sumatera Barat	278,797	23,506	43,120	95,937	97,281	30,431	70,259	45,393	52,175	736,899
4 Riau	169,390	1,150	3,760	14,027	21,658	9,148	53,509	73,582	218,128	564,352
5 Jambi	94,489	5,255	2,806	18,272	21,292	11,813	64,321	30,727	143,123	392,098
6 Sumatera Selatan	288,383	4,132	7,259	48,695	86,647	28,729	175,467	120,574	323,425	1,083,311
7 Bengkulu	46,154	762	1,983	11,134	21,497	8,985	42,075	31,015	71,787	235,392
8 Lampung	297,083	4,703	28,545	139,469	180,097	74,307	193,226	122,467	215,975	1,255,872
9 DKI Jakarta	-	-	-	-	-	-	-	-	-	0
10 Jawa Barat	3,006,900	329,209	626,853	659,252	395,924	148,747	182,657	129,415	148,021	5,626,978
11 Jawa Tengah	1,937,778	219,763	810,780	935,611	489,654	165,548	151,695	114,620	92,096	4,917,545
12 DI. Yogyakarta	75,285	45,885	67,662	50,836	31,034	14,957	13,814	13,141	8,669	321,283
13 Jawa Timur	2,474,165	336,757	881,616	1,086,052	557,605	177,137	182,236	155,742	137,609	5,988,919
14 Bali	177,761	8,569	45,667	70,285	50,670	17,494	24,693	16,891	41,394	453,424
15 NTB	311,623	19,107	69,251	103,873	64,684	31,641	38,823	29,831	36,146	704,979
16 NTT	75,598	3,428	13,368	46,661	92,616	53,076	118,474	110,755	113,572	627,548
17 Timor Timur	25,672	554	1,379	4,778	14,151	3,468	34,889	25,633	43,892	154,416
18 Kalimantan Barat	132,799	3,912	8,851	29,678	40,445	18,533	76,468	55,478	237,701	603,865
19 Kalimantan Tengah	65,333	315	975	3,442	10,854	5,596	46,540	34,847	120,082	287,984
20 Kalimantan Selatan	160,555	3,150	30,794	69,826	55,200	24,697	53,108	38,151	58,814	494,295
21 Kalimantan Timur	95,044	2,278	4,557	11,711	11,679	7,227	28,805	26,636	78,543	266,480
22 Sulawesi Utara	168,682	861	11,568	33,120	59,340	18,159	84,186	35,168	72,006	483,090
23 Sulawesi Tengah	62,698	1,372	1,826	12,136	35,999	10,600	63,537	44,507	94,077	326,752
25 Sulawesi Tenggara	53,742	1,536	3,958	9,236	31,906	11,516	45,476	42,742	61,490	261,602
24 Sulawesi Selatan	289,146	11,055	50,832	135,417	170,517	100,735	142,722	135,812	155,586	1,191,822
26 Maluku	55,132	1,792	481	3,661	14,221	2,919	61,040	30,772	138,526	308,544
27 Irian Jaya	44,330	6,006	6,814	19,563	37,417	32,679	45,533	56,652	79,147	328,141
Whole Country	**11,071,938**	**1,066,727**	**2,867,103**	**3,836,306**	**2,843,706**	**1,109,285**	**2,238,880**	**1,663,225**	**2,992,788**	**29,689,958**

(Unit : No. of Households)

Urban and Rural	Area of Agricultural land Owned (ha)									
Province	Not Own	< 0.10	0.10 - 0.24	0.25 - 0.49	0.50 - 0.74	0.75 - 0.99	1.00 - 1.24	1.25 - 1.99	> 2.00	Total
1 DI. Aceh	346,284	7,415	48,432	88,418	95,871	30,851	87,480	46,880	78,437	830,068
2 Sumatera Utara	1,312,347	29,748	118,820	158,869	173,389	78,003	175,396	100,295	198,937	2,345,804
3 Sumatera Barat	483,649	25,418	44,839	101,667	103,591	31,989	76,313	47,564	56,993	972,023
4 Riau	428,395	1,974	6,455	16,353	28,396	9,823	60,093	76,349	226,418	854,256
5 Jambi	213,159	6,282	3,410	20,083	23,760	11,813	68,177	31,829	152,135	530,648
6 Sumatera Selatan	698,107	5,826	9,303	55,434	94,838	30,962	184,386	126,049	340,017	1,544,922
7 Bengkulu	114,266	1,314	1,983	12,242	22,978	9,187	46,064	32,370	75,916	316,320
8 Lampung	488,592	5,307	29,187	143,356	184,040	76,120	198,085	124,546	220,431	1,469,664
9 DKI Jakarta	2,017,648	2,916	1,417	865	1,525	218	2,824	872	10,135	2,038,420
10 Jawa Barat	6,486,587	410,267	709,948	727,815	432,418	163,748	208,394	140,419	173,037	9,452,633
11 Jawa Tengah	3,881,183	257,617	887,143	1,031,175	528,848	179,869	163,330	122,922	102,893	7,154,980
12 DI. Yogyakarta	426,867	95,538	115,795	62,964	44,464	15,912	17,585	18,991	9,143	807,259
13 Jawa Timur	4,829,619	378,604	951,740	1,176,329	607,129	188,976	198,766	164,316	152,602	8,648,081
14 Bali	372,241	11,312	59,126	84,258	56,932	19,611	26,642	17,130	44,492	691,744
15 NTB	439,235	22,461	76,260	110,194	68,515	32,504	40,857	31,503	38,270	859,799
16 NTT	149,133	3,573	14,761	51,007	96,988	55,288	120,989	112,775	116,525	721,039
17 Timor Timur	37,016	624	1,675	5,033	15,056	3,579	35,926	26,234	45,030	170,173
18 Kalimantan Barat	270,219	4,456	8,987	30,756	43,124	18,861	79,907	56,341	241,454	754,105
19 Kalimantan Tengah	140,318	496	1,567	4,262	12,388	6,082	48,312	36,172	122,707	372,304
20 Kalimantan Selatan	349,008	4,128	32,602	73,205	57,637	26,035	55,277	39,370	61,799	699,061
21 Kalimantan Timur	319,469	3,728	6,213	13,744	17,044	8,951	36,487	30,434	89,706	525,776
22 Sulawesi Utara	320,353	1,914	12,775	34,572	63,178	20,000	92,457	37,201	78,526	660,976
23 Sulawesi Tengah	131,305	1,472	2,342	13,717	39,095	11,738	67,583	45,823	101,277	414,352
25 Sulawesi Tenggara	110,722	2,073	4,010	10,187	34,275	12,558	50,256	44,561	64,768	333,410
24 Sulawesi Selatan	649,891	15,167	59,319	148,252	185,580	105,185	155,391	143,613	172,744	1,635,142
26 Maluku	144,406	1,898	576	4,104	15,917	3,506	64,579	32,324	141,778	409,088
27 Irian Jaya	140,760	8,836	8,933	20,577	39,539	33,083	47,195	58,655	83,459	441,037
Whole Country	**25,300,779**	**1,310,364**	**3,217,618**	**4,199,438**	**3,086,515**	**1,184,452**	**2,408,751**	**1,745,538**	**3,199,629**	**45,653,084**

Source: Results of the 1995 Intercensal Population Survey, Central Bureau of Statistics
(Hasil Survey Penduduk Antar Sensus 1995, BPS).

Table 3.1.5 Harvested Area and Production of Major Food Crops by Province (1/3, in 2000)

	Production (1,000 ton)						Harvered Area (1,000 ha)					
Production	Paddy	Maize	Cassava	Sweet Potato	Peanut	Soybean	Paddy	Maize	Cassava	Sweet Potato	Peanut	Soybean
1 DI. Aceh	1,405	37	65	25	9	72	337	16	5	3	7	59
2 Sumatera Utara	3,514	667	480	127	24	13	848	222	40	14	23	12
3 Sumatera Barat	1,759	56	95	33	9	8	397	24	8	3	8	7
4 Riau	431	48	70	13	4	3	142	22	7	2	4	3
5 Jambi	537	24	55	14	2	4	171	12	5	2	2	4
6 Sumatera Selatan	1,864	94	327	27	8	9	555	41	30	4	7	8
7 Bengkulu	363	46	93	64	6	3	109	25	8	7	6	3
8 Lampung	1,946	1,123	2,924	43	10	22	497	382	258	4	9	24
Sumatra	**11,819**	**2,095**	**4,109**	**346**	**72**	**134**	**3,056**	**744**	**361**	**39**	**66**	**120**
9 DKI Jakarta	16	78	2	-	1	-	4	1	1	-	1	-
10 Jawa Barat	10,750	412	1,816	386	109	55	2,188	139	137	35	97	45
11 Jawa Tengah	8,475	1,714	3,092	142	160	204	1,669	582	227	12	143	147
12 DI. Yogyakarta	654	174	701	7	54	68	138	66	56	1	54	54
13 Jawa Timur	9,224	3,488	3,622	194	180	385	1,754	1,170	249	18	171	306
Jawa	**29,119**	**5,866**	**9,233**	**729**	**504**	**712**	**5,753**	**1,958**	**670**	**66**	**466**	**552**
14 Bali	827	95	159	65	15	14	155	38	14	6	13	10
15 NTB	1,488	66	99	10	28	71	341	32	9	1	25	67
16 NTT	461	527	836	156	15	3	176	253	84	20	15	4
17 Timor Timur	-	-	-	-	-	-	-	-	-	-	-	-
Bali, Nusatenggara	**2,776**	**688**	**1,094**	**231**	**58**	**88**	**672**	**323**	**107**	**27**	**53**	**81**
18 Kalimantan Barat	903	31	176	17	2	2	361	18	15	2	2	2
19 Kalimantan Tengah	363	9	107	18	3	5	162	6	10	3	3	4
20 Kalimantan Selatan	1,332	37	129	19	17	9	433	25	10	2	16	7
21 Kalimantan Timur	402	14	91	20	2	2	138	8	7	2	2	2
Kalimantan	**3,000**	**91**	**503**	**74**	**24**	**18**	**1,094**	**57**	**42**	**9**	**23**	**15**
22 Sulawesi Utara	514	225	50	23	8	7	122	100	5	3	8	6
23 Sulawesi Tengah	577	53	44	18	6	2	161	23	5	2	6	2
24 Sulawesi Selatan	3,659	633	492	73	48	42	806	242	45	9	42	33
25 Sulawesi Tenggara	315	87	203	21	8	3	86	42	18	3	10	4
Sulawesi	**5,065**	**998**	**789**	**135**	**70**	**54**	**1,175**	**407**	**73**	**17**	**66**	**45**
26 Maluku	36	7	312	30	2	2	15	5	28	4	2	2
27 Irian Jaya	81	7	47	281	7	7	29	5	4	33	9	7
Maluku, Irian	**117**	**14**	**359**	**311**	**9**	**9**	**44**	**10**	**32**	**37**	**11**	**9**
Total	**51,896**	**9,752**	**16,087**	**1,826**	**737**	**1,015**	**11,794**	**3,499**	**1,285**	**195**	**685**	**822**

Source：Agricultural Statistics 2001、Ministry of Agriculture

Table 3.1.5 Harvested Area and Production of Major Food Crops by Province (2/3, in 2001)

	Production (1,000 ton)						Harvered Area (1,000 ha)					
Production	**Paddy**	**Maize**	**Cassava**	**Sweet Potato**	**Peanut**	**Soybean**	**Paddy**	**Maize**	**Cassava**	**Sweet Potato**	**Peanut**	**Soybean**
1 DI. Aceh	1,246.61	51.23	44.39	16.70	5.05	63.13	295.21	20.61	3.61	1.73	4.36	51.02
2 Sumatera Utara	3,291.52	634.16	507.52	118.18	22.49	10.72	801.95	198.71	41.23	12.46	21.13	10.00
3 Sumatera Barat	1,668.96	48.82	82.21	30.34	8.71	4.94	376.71	18.39	6.70	2.88	7.63	4.12
4 Riau	413.39	39.92	55.82	11.25	3.18	2.29	132.51	18.35	5.08	1.45	3.48	2.01
5 Jambi	556.56	23.98	54.61	14.73	2.61	2.36	164.83	11.49	4.99	1.77	2.48	2.17
6 Sumatera Selatan	1,723.43	68.77	323.68	14.80	6.17	5.34	511.93	28.83	27.88	2.35	5.76	4.76
7 Bengkulu	376.97	41.56	73.57	58.75	5.47	1.40	105.21	22.58	6.46	6.35	5.55	1.51
8 Lampung	1,992.73	1,122.89	3,584.23	42.21	14.02	12.39	501.12	378.25	316.98	4.38	12.25	12.18
9 Bangka Belitung	16.43	1.11	18.13	4.48	0.33	0.00	7.13	0.55	1.58	0.59	0.31	0.00
Sumatera	**11,286.60**	**2,032.43**	**4,744.14**	**311.43**	**68.03**	**102.56**	**2,896.59**	**697.74**	**414.49**	**33.96**	**62.95**	**87.76**
10 DKI Jakarta	16.89	0.06	0.88	-	0.02	-	3.36	0.04	0.07	-	0.02	-
11 Jawa Barat	9,237.59	361.06	1,569.85	311.74	86.06	34.60	1,866.07	117.67	118.99	28.63	73.31	28.56
12 Jawa Tengah	8,289.93	1,553.92	3,234.92	131.71	161.18	151.18	1,650.63	528.86	224.39	11.77	142.43	111.81
13 DI. Yogyakarta	661.80	187.58	736.32	7.91	50.55	50.20	137.26	71.37	58.22	0.76	58.87	45.41
14 Jawa Timur	8,672.79	3,529.97	4,016.33	189.67	176.89	349.19	1,708.48	1,135.83	257.11	17.65	162.86	280.65
15 Banten	1,433.40	30.40	179.48	45.92	13.10	2.00	335.03	12.53	13.61	4.22	13.23	1.66
Jawa	**28,312.40**	**5,662.99**	**9,737.77**	**686.94**	**487.80**	**587.17**	**5,700.82**	**1,866.31**	**672.39**	**63.03**	**450.70**	**468.08**
15 Bali	789.23	79.69	160.01	53.51	16.39	11.85	147.94	31.86	14.09	4.84	12.99	8.44
16 NTB	1,458.62	50.78	96.97	17.29	30.60	72.11	330.66	24.97	8.65	1.57	27.35	67.78
17 NTT	448.00	553.30	778.42	147.06	11.30	1.65	165.62	258.33	76.28	16.68	11.68	2.01
18 Timor Timur	-	-	-	-	-	-	-	-	-	-	-	-
Bali, Nusatenggara	**2,695.85**	**683.77**	**1,035.41**	**217.86**	**58.29**	**85.61**	**644.22**	**315.16**	**99.02**	**23.09**	**52.02**	**78.24**
19 Kalimantan Barat	941.63	35.50	167.43	14.61	1.43	1.92	361.94	16.34	13.04	1.90	1.43	1.79
20 Kalimantan Tengah	360.08	7.83	70.92	18.50	1.94	3.48	150.69	5.07	6.63	2.76	1.87	3.35
21 Kalimantan Selatan	1,406.07	38.28	113.15	22.61	16.69	6.14	428.04	21.02	9.09	2.41	15.03	5.17
22 Kalimantan Timur	366.71	10.38	89.82	21.37	2.40	2.17	125.46	5.97	7.02	2.54	2.36	2.00
Kalimantan	**3,074.49**	**91.99**	**441.32**	**77.08**	**22.46**	**13.71**	**1,066.14**	**48.40**	**35.79**	**9.61**	**20.69**	**12.31**
23 Sulawesi Utara	310.80	150.46	26.53	17.95	5.98	3.57	72.27	68.44	2.58	2.06	5.28	2.97
24 Sulawesi Tengah	520.64	49.10	49.79	23.81	3.66	2.03	146.61	20.33	4.49	2.99	3.19	2.04
25 Sulawesi Selatan	3,728.74	515.41	460.92	80.42	42.16	18.61	827.27	191.96	40.67	9.16	36.57	14.47
26 Sulawesi Tenggara	263.48	60.39	152.82	19.60	7.67	1.20	71.50	28.77	13.43	2.74	9.55	1.64
27 Gorontalo	158.87	81.72	12.20	5.32	3.63	2.17	35.64	36.61	1.19	0.62	3.20	1.85
Sulawesi	**4,982.53**	**857.06**	**702.24**	**147.10**	**63.09**	**27.58**	**1,153.28**	**346.11**	**62.35**	**17.56**	**57.79**	**22.96**
28 Maluku	33.89	10.35	335.57	25.03	2.68	2.29	14.55	6.67	28.40	3.03	2.40	1.91
29 Irian Jaya	75.03	8.61	58.20	283.63	7.41	8.01	24.39	5.47	5.47	30.75	8.28	7.59
Maluku, Irian	**108.92**	**18.96**	**393.77**	**308.66**	**10.09**	**10.30**	**38.94**	**12.15**	**33.88**	**33.78**	**10.69**	**9.50**
Total	**50,460.78**	**9,347.19**	**17,054.65**	**1,749.07**	**709.77**	**826.93**	**11,500.00**	**3,285.87**	**1,317.91**	**181.03**	**654.84**	**678.85**

Source: Agricultural Statistics 2002, Ministry of Agriculture.

Table 3.1.5 Harvested Area and Production of Major Food Crops by Province (3/3, in 2002)

	Production (1,000 ton)						Harvested Area (1,000 ha)					
Production	**Paddy**	**Maize**	**Cassava**	**Sweet Potato**	**Peanut**	**Soybean**	**Paddy**	**Maize**	**Cassava**	**Sweet Potato**	**Peanut**	**Soybean**
1 DI. Aceh	1,314.17	60.11	52.13	17.29	7.38	21.52	315.13	23.87	4.27	1.78	6.19	17.21
2 Sumatera Utara	3,153.31	640.59	441.82	118.17	23.30	10.20	765.16	198.67	36.12	12.41	21.43	9.71
3 Sumatera Barat	1,875.83	67.24	100.66	37.56	8.76	2.08	424.25	25.64	8.05	3.34	7.70	1.66
4 Riau	396.64	38.59	56.55	9.18	4.14	2.31	129.03	17.79	5.33	1.18	4.49	2.30
5 Jambi	561.01	26.72	52.52	16.82	1.81	3.77	165.73	11.53	4.64	2.00	1.76	3.46
6 Sumatera Selatan	1,899.85	53.44	271.05	16.88	6.22	3.79	561.72	21.75	23.11	2.47	5.74	3.26
7 Bengkulu	379.82	52.19	81.39	62.69	6.04	1.92	109.52	28.95	7.19	6.72	6.23	2.06
8 Lampung	1,951.11	989.32	3,471.14	39.50	9.33	6.03	475.46	320.06	295.16	4.11	8.41	6.02
9 Bangka Belitung	10.32	0.93	21.09	4.88	0.29	0.00	4.50	0.43	1.85	0.65	0.27	0.00
Sumatera	**11,542.05**	**1,929.13**	**4,548.33**	**322.95**	**67.25**	**51.62**	**2,950.50**	**648.70**	**385.71**	**34.65**	**62.25**	**45.66**
10 DKI Jakarta	11.30	0.05	1.06	-	0.02	-	2.32	0.03	0.09	-	0.02	-
11 Jawa Barat	9,166.87	464.26	1,800.26	389.51	86.47	29.79	1,792.32	126.15	120.63	34.07	67.41	22.71
12 Jawa Tengah	8,503.52	1,505.71	3,097.78	126.89	150.53	117.07	1,653.44	495.22	227.61	10.79	141.54	89.06
13 DI. Yogyakarta	653.58	170.75	750.21	7.10	58.48	50.98	134.85	62.31	59.18	0.74	61.71	42.94
14 Jawa Timur	8,803.88	3,692.15	3,919.85	168.78	188.00	300.18	1,686.43	1,043.29	248.16	14.79	160.34	238.14
15 Banten	1,468.77	19.22	137.98	42.38	14.14	4.57	338.67	8.35	10.54	3.90	13.94	3.95
Jawa	**28,607.92**	**5,852.14**	**9,707.13**	**734.66**	**497.64**	**502.59**	**5,608.03**	**1,735.35**	**666.21**	**64.28**	**444.96**	**396.80**
15 Bali	808.97	98.58	125.78	67.99	16.25	10.25	148.66	34.40	10.40	5.86	13.78	7.64
16 NTB	1,370.17	57.79	87.91	17.55	32.23	59.99	310.97	28.85	7.80	1.58	28.18	52.57
17 NTT	468.01	580.90	870.16	133.07	13.62	2.98	165.86	258.46	80.77	16.67	12.91	3.61
18 Timor Timur	-	-	-	-	-	-	-	-	-	-	-	-
Bali, Nusatenggara	**2,647.15**	**737.27**	**1,083.85**	**218.61**	**62.09**	**73.23**	**625.49**	**321.70**	**98.96**	**24.11**	**54.86**	**63.82**
19 Kalimantan Barat	985.49	46.81	201.74	14.95	2.39	1.82	346.57	20.50	15.16	1.97	2.22	1.64
20 Kalimantan Tengah	395.24	7.73	104.14	18.68	1.57	2.04	157.86	4.82	9.20	2.75	1.45	1.88
21 Kalimantan Selatan	1,346.01	29.01	107.24	24.42	16.88	7.12	421.40	16.76	8.33	2.50	13.84	5.80
22 Kalimantan Timur	442.63	12.18	115.70	23.01	2.81	2.07	153.21	6.37	8.79	2.65	2.82	1.83
Kalimantan	**3,169.37**	**95.74**	**528.82**	**81.07**	**23.65**	**13.05**	**1,079.04**	**48.45**	**41.48**	**9.86**	**20.33**	**11.15**
23 Sulawesi Utara	346.08	116.90	32.13	14.96	3.53	1.76	80.36	55.65	3.15	1.73	3.20	1.49
24 Sulawesi Tengah	746.02	48.50	69.49	28.53	6.15	2.02	197.03	21.81	6.39	3.37	5.47	1.90
25 Sulawesi Selatan	3,893.92	661.01	543.44	77.70	42.42	19.32	837.88	205.91	40.73	8.18	39.11	14.48
26 Sulawesi Tenggara	298.81	68.15	181.85	19.53	8.54	2.02	79.25	33.79	15.29	2.62	10.59	2.32
27 Gorontalo	153.22	130.25	9.76	4.29	2.33	1.85	34.65	45.72	0.93	0.51	2.01	1.52
Sulawesi	**5,438.05**	**1,024.80**	**836.67**	**145.02**	**62.96**	**26.96**	**1,229.17**	**362.88**	**66.48**	**16.40**	**60.37**	**21.70**
28 Maluku	12.03	7.10	161.17	12.04	1.12	0.49	4.53	4.87	13.61	1.46	0.97	0.41
29 Irian Jaya	73.12	7.94	47.14	257.30	3.37	5.13	24.40	4.90	4.08	26.51	3.22	4.97
Maluku, Irian	**85.16**	**15.04**	**208.31**	**269.34**	**4.49**	**5.61**	**28.94**	**9.76**	**17.69**	**27.97**	**4.19**	**5.38**
Total	**51,489.69**	**9,654.11**	**16,913.10**	**1,771.64**	**718.07**	**673.06**	**11,521.17**	**3,126.83**	**1,276.53**	**177.28**	**646.95**	**544.52**

Source: Agricultural Statistics 2003, Ministry of Agriculture.

Table 3.1.6 Harvested Area and Production of Major Food Crops in Indonesia

Year	Paddy			Soybean			Cassava			Sweet Potato			Peanut			Maize		
	Harvested Area (ha)	Unit Yield (ton/ha)	Production (ton)	Harvested Area (ha)	Unit Yield (ton/ha)	Production (ton)	Harvested Area (ha)	Unit Yield (ton/ha)	Production (ton)	Harvested Area (ha)	Unit Yield (ton/ha)	Production (ton)	Harvested Area (ha)	Unit Yield (ton/ha)	Production (ton)	Harvested Area (ha)	Unit Yield (ton/ha)	Production (ton)
1968	8,020,773	2.1	17,195,343	676,087	0.6	419,932	1,503,502	7.6	11,355,634	403,866	5.9	2,364,297	394,601	0.7	286,698	3,220,012	1.0	3,166,046
1969	8,013,723	2.6	20,464,474	553,783	0.7	388,907	1,467,146	7.4	10,916,529	369,443	6.1	2,260,185	372,279	0.7	267,158	2,435,823	0.9	2,292,876
1970	8,135,078	2.4	19,323,533	694,732	0.7	497,883	1,398,070	7.5	10,478,308	357,568	6.1	2,175,317	380,060	0.7	281,309	2,938,611	1.0	2,825,215
1971	8,324,322	3.2	26,392,175	679,625	0.8	515,644	1,406,093	7.6	10,689,691	356,866	6.2	2,211,360	375,752	0.8	283,773	2,626,595	1.0	2,606,494
1972	7,897,638	3.2	25,351,110	697,500	0.7	518,229	1,468,412	7.1	10,384,952	337,811	6.1	2,066,325	353,818	0.8	282,205	2,160,053	1.0	2,254,382
1973	8,403,604	2.7	23,090,849	743,657	0.7	541,040	1,428,813	7.8	11,185,592	378,725	6.3	2,386,764	415,831	0.7	290,104	3,433,164	1.1	3,689,802
1974	8,508,598	3.5	29,376,492	768,027	0.8	589,239	1,509,440	8.6	13,030,674	330,250	7.5	2,469,208	410,663	0.7	307,166	2,666,868	1.1	3,010,781
1975	8,495,096	3.4	29,201,619	751,689	0.8	589,831	1,410,025	8.9	12,545,544	310,917	7.8	2,432,614	474,519	0.8	379,683	2,445,866	1.2	2,902,887
1976	8,368,759	3.6	30,470,458	646,336	0.8	521,777	1,353,328	9.0	12,190,728	301,055	7.9	2,381,213	414,211	0.8	341,088	2,095,054	1.2	2,572,139
1977	8,359,568	2.8	23,347,132	646,121	0.8	522,821	1,363,552	9.2	12,487,664	326,239	7.5	2,460,364	507,249	0.8	408,950	2,566,509	1.2	3,142,654
1978	8,929,169	2.9	25,771,570	733,142	0.8	616,599	1,302,903	9.9	12,902,011	300,540	6.9	2,082,801	506,445	0.9	445,812	3,024,611	1.3	4,029,201
1979	8,803,564	3.0	26,282,663	784,489	0.9	679,825	1,439,315	9.6	13,750,767	286,878	7.6	2,194,409	473,246	0.9	424,362	2,593,621	1.4	3,605,535
1980	9,005,065	3.3	29,651,905	732,346	0.9	652,762	1,412,481	9.7	13,726,336	276,048	7.5	2,078,767	506,401	0.9	469,808	2,734,940	1.5	3,990,939
1981	9,381,839	3.5	32,774,176	809,978	0.9	703,811	1,387,536	9.6	13,300,911	274,905	7.6	2,093,572	507,958	0.9	474,591	2,955,039	1.5	4,509,302
1982	9,021,524	3.8	34,103,865	606,408	0.8	513,549	1,302,944	9.7	12,676,211	243,896	7.8	1,896,911	470,194	0.9	436,822	2,061,299	1.6	3,234,824
1983	9,162,469	3.9	35,303,106	639,876	0.8	536,103	1,220,808	9.9	12,102,734	280,173	7.9	2,213,027	480,514	1.0	460,421	3,002,227	1.7	5,086,875
1984	9,763,580	3.9	38,136,446	858,892	0.9	769,384	1,350,448	10.5	14,167,090	263,854	8.2	2,156,529	537,591	1.0	534,815	3,086,246	1.7	5,287,825
1985	9,902,293	3.9	39,032,945	896,220	1.0	869,718	1,291,845	10.9	14,057,027	256,086	8.4	2,161,493	510,037	1.0	527,852	2,439,966	1.8	4,329,503
1986	9,988,453	4.0	39,726,761	1,253,767	1.0	1,226,727	1,169,886	11.4	13,312,119	253,067	8.3	2,090,568	601,261	1.1	641,878	3,142,759	1.9	5,920,374
1987	9,922,594	4.0	40,078,195	1,100,565	1.1	1,160,963	1,222,151	11.7	14,356,336	229,070	8.8	2,012,846	550,754	1.0	533,106	2,626,033	2.0	5,155,680
1988	10,140,155	4.1	41,676,170	1,177,360	1.1	1,270,418	1,302,581	11.9	15,471,111	247,822	8.7	2,158,629	607,602	1.0	589,265	3,405,751	2.0	6,651,917
1989	10,531,207	4.2	44,725,582	1,198,096	1.1	1,315,113	1,407,880	12.2	17,117,249	240,178	9.3	2,224,346	620,817	1.0	619,585	2,944,199	2.1	6,192,512
1990	10,502,357	4.3	45,178,751	1,334,100	1.1	1,487,433	1,311,564	12.1	15,829,635	208,732	9.4	1,971,466	635,014	1.0	650,560	3,158,092	2.1	6,734,028
1991	10,281,519	4.3	44,688,247	1,368,199	1.1	1,555,453	1,319,143	12.1	15,954,467	214,316	9.5	2,039,212	628,256	1.0	652,119	2,909,100	2.2	6,255,906
1992	11,103,317	4.3	48,240,009	1,665,706	1.1	1,869,713	1,351,324	12.2	16,515,855	229,786	9.4	2,171,036	719,703	1.0	739,050	3,629,346	2.2	7,995,459
1993	11,012,776	4.4	48,181,087	1,470,206	1.2	1,708,528	1,401,640	12.3	17,285,385	224,098	9.3	2,088,205	624,289	1.0	638,708	2,939,534	2.2	6,459,737
1994	10,733,830	4.3	46,641,524	1,406,918	1.1	1,564,847	1,356,580	11.6	15,729,232	197,170	9.4	1,845,178	642,998	1.0	631,971	3,109,398	2.2	6,868,885
1995	11,438,764	4.3	49,744,140	1,477,432	1.1	1,680,007	1,324,259	11.7	15,441,481	228,673	9.5	2,171,027	739,305	1.0	760,148	3,651,838	2.3	8,245,902
1996	11,569,729	4.4	51,101,506	1,279,286	1.2	1,517,181	1,415,101	12.0	17,002,455	211,681	9.5	2,017,516	688,908	1.1	737,815	3,743,573	2.5	9,307,423
1997	11,140,594	4.4	49,377,054	1,119,079	1.2	1,356,891	1,243,366	12.2	15,134,021	195,436	9.5	1,847,492	628,142	1.1	688,345	3,355,224	2.6	8,770,851
1998	11,730,325	4.2	49,236,692	1,095,071	1.2	1,305,640	1,205,353	12.2	14,696,203	202,093	9.6	1,935,044	651,098	1.1	692,357	3,847,813	2.6	10,169,488
1999	11,963,204	4.3	50,866,387	1,151,079	1.2	1,382,848	1,350,008	12.2	16,458,544	172,243	9.7	1,665,547	624,980	1.1	659,586	3,456,357	2.7	9,204,036
2000	11,793,475	4.4	51,898,852	824,484	1.2	1,017,634	1,284,040	12.5	16,089,020	194,262	9.4	1,827,687	683,554	1.1	736,517	3,500,318	2.8	9,676,899
2001	11,499,997	4.4	50,460,782	678,848	1.2	826,932	1,317,912	12.9	17,054,648	181,026	9.7	1,749,070	654,838	1.1	709,770	3,285,866	2.8	9,347,192
2002	11,521,166	4.5	51,489,694	544,522	1.2	673,056	1,276,533	13.2	16,913,104	177,276	10.0	1,771,642	646,953	1.1	718,071	3,126,833	3.1	9,654,105
2003	11,477,357	4.5	52,078,830	526,700	1.3	672,439	1,239,700	14.9	18,473,961	198,200	10.1	1,997,787	682,900	1.1	784,788	3,354,700	3.3	10,910,104

Source) Central Bureau of Statistics, Statistical Year Book of Indonesia

Table 3.1.7 Perspective of Supply and Demand of Rice for 2005 by Province

Province		Production[*1] (ton)	Population[*1] (persons)	Consumption[*2] (kg /capita)	Demand (ton)	Balance (ton)	Ratio	Balance
1 Sulawesi Selatan	(Sulawesi)	2,435,000	8,635,400	111.97	966,900	1,468,100	2.52	Surplus
2 Kalimantan Selatan	(Kalimantan)	910,800	3,172,500	114.88	364,500	546,300	2.50	Surplus
3 Sumatera Barat	(Sumatra)	1,104,500	4,535,800	132.44	600,700	503,800	1.84	Surplus
4 Sulawesi Tengah	(Sulawesi)	463,300	2,336,700	113.23	264,600	198,700	1.75	Surplus
5 NTB	(Bali, NT)	922,300	4,311,200	124.99	538,900	383,400	1.71	Surplus
6 Sumatera Selatan	(Sumatra)	1,305,200	7,483,900	109.68	820,800	484,400	1.59	Surplus
7 Jawa Timur	(Java)	5,408,600	35,793,500	98.72	3,533,500	1,875,100	1.53	Surplus
8 Kalimantan Tengah	(Kalimantan)	338,200	2,028,000	112.00	227,100	111,100	1.49	Surplus
9 Lampung	(Sumatra)	1,192,100	7,234,900	111.80	808,900	383,200	1.47	Surplus
10 Jawa Tengah	(Java)	5,053,700	33,047,200	107.07	3,538,400	1,515,300	1.43	Surplus
11 Sumatera Utara	(Sumatra)	2,052,700	12,651,800	119.71	1,514,500	538,200	1.36	Surplus
12 Kalimantan Barat	(Kalimantan)	652,900	4,352,100	116.06	505,100	147,800	1.29	Surplus
13 Bengkulu	(Sumatra)	259,700	1,691,900	120.42	203,700	56,000	1.27	Surplus
14 Jawa Barat	(Java)	5,441,700	37,992,900	115.48	4,387,400	1,054,300	1.24	Surplus
15 Jambi	(Sumatra)	367,200	2,612,300	118.74	310,200	57,000	1.18	Surplus
16 Bali	(Bali, NT)	479,300	3,314,000	123.36	408,800	70,500	1.17	Surplus
17 DI. Yogyakarta	(Java)	405,000	3,179,600	112.51	357,700	47,300	1.13	Surplus
18 Kalimantan Timur	(Kalimantan)	288,800	2,664,400	99.73	265,700	23,100	1.09	Balance
19 Sulawesi Utara	(Sulawesi)	241,500	2,111,400	112.26	237,000	4,500	1.02	Balance
20 Sulawesi Tenggara	(Sulawesi)	209,600	1,997,600	105.87	211,500	-1,900	0.99	Balance
21 Banten	(Java)	1,056,500	8,697,300	124.64	1,084,000	-27,500	0.97	Balance
22 Gorontalo	(Sulawesi)	75,900	892,600	88.97	79,400	-3,500	0.96	Balance
23 NTT	(Bali, NT)	305,900	4,121,300	101.37	417,800	-111,900	0.73	Deficit
24 Riau	(Sumatra)	293,800	5,479,800	116.63	639,100	-345,300	0.46	Deficit
25 Bangka Belitung	(Sumatra)	13,900	1,075,900	99.98	107,600	-93,700	0.13	Deficit
26 DKI Jakarta	(Java)	6,400	8,902,800	114.44	1,018,800	-1,012,400	0.01	Deficit
27 DI. Aceh	(Sumatra)	940,000	4,307,400	na	-	-	-	-
28 Kepulauan Riau	(Sumatra)	4,600	na	na	-	-	-	-
29 Irian Jaya	(Maluku, Irian Jaya)	44,300	2,459,400	na	-	-	-	-
30 Irian Jaya Barat	(Maluku, Irian Jaya)	16,600	na	na	-	-	-	-
31 Maluku	(Maluku, Irian Jaya)	17,500	1,260,500	na	-	-	-	-
32 Maluku Utara	(Maluku, Irian Jaya)	30,900	797,700	na	-	-	-	-
Total		**32,338,400**	**219,141,800**	**110.19**	**24,147,200**	**8,191,200**	**1.34**	**Surplus**

Source: *1: DG of Food Crops Production Development, Ministry of Agriculture. Conversion factor from paddy to rice is 0.5961 specified by DG.
*2: Agency for Food Security, Ministry of Agriculture. This consumption include only food consumption. Total figure of consumption in Indonesia was provided separately besides province-wise data.

Table 3.1.8 Domestic Production and Traded Quantities of Major Food Crops

(Unit: 1,000ton)

Year	Rice			Maize			Soybeans			Potatoes			Vegetable			Fruits		
	Production	Import	Export	Production	Import	Export	Production	Import	Export	Production	Import	Export	Production	Import	Export	Production	Import	Export
1969	12,019	620	0	2,293	0	156	389	0	1	104	0	0	2,055	33	15	3,003	5	1
1970	12,894	981	0	2,825	0	286	498	0	4	70	0	1	2,179	28	32	3,576	8	8
1971	13,467	519	0	2,606	0	219	516	0	1	123	0	1	2,328	20	51	3,475	12	3
1972	12,936	754	0	2,254	0	80	518	0	3	124	0	3	2,387	26	19	3,681	17	3
1973	14,333	1,911	0	3,690	35	181	541	0	36	174	0	4	2,506	36	32	4,086	21	1
1974	14,989	1,162	0	3,011	0	197	589	0	4	120	1	5	2,550	63	43	3,967	27	5
1975	14,900	710	0	2,903	0	51	590	18	0	124	1	5	2,628	57	39	3,742	27	7
1976	15,542	1,335	0	2,572	69	4	522	172	1	154	1	7	2,131	71	44	2,965	43	7
1977	15,573	2,025	0	3,143	15	10	523	89	0	248	0	8	2,097	80	53	3,736	35	8
1978	17,190	1,890	0	4,029	46	21	617	130	0	233	0	2	2,335	74	18	3,223	35	10
1979	17,531	1,972	0	3,606	84	7	680	177	0	204	0	1	2,396	102	42	3,785	32	15
1980	19,778	2,064	10	3,991	35	15	653	101	0	230	1	0	2,467	122	34	4,268	34	18
1981	21,860	553	0	4,509	9	10	704	361	0	217	1	0	2,454	168	37	4,575	41	12
1982	22,400	321	0	3,235	88	1	521	361	0	158	14	0	2,299	173	36	4,661	54	6
1983	23,547	1,203	0	5,087	34	18	536	222	0	250	2	2	2,602	52	45	4,567	26	6
1984	25,437	433	0	5,288	68	160	769	401	0	372	3	12	2,770	132	44	5,150	15	16
1985	26,035	51	263	4,330	54	4	870	302	0	373	3	19	3,235	34	41	4,832	16	13
1986	26,498	51	137	5,920	64	4	1,227	360	0	446	2	22	3,815	33	37	5,618	18	28
1987	26,732	79	34	5,156	227	5	1,161	287	0	369	1	34	4,000	32	30	5,413	12	44
1988	27,798	65	0	6,652	70	37	1,270	466	0	418	1	58	3,892	35	54	5,531	14	51
1989	29,832	289	109	6,193	49	242	1,315	391	0	559	5	73	4,349	55	70	5,175	19	78
1990	30,134	74	5	6,734	23	146	1,487	541	0	629	10	77	4,385	50	75	5,973	45	87
1991	29,807	203	1	6,256	340	34	1,555	673	0	526	17	99	4,273	57	102	6,580	49	138
1992	32,176	647	45	7,995	76	163	1,870	694	4	703	17	97	4,817	69	114	7,087	66	165
1993	32,137	36	361	6,460	516	61	1,709	724	1	809	27	128	5,027	98	129	7,325	95	241
1994	31,110	648	174	6,869	1,178	38	1,565	801	0	877	27	89	5,529	117	138	8,267	123	221
1995	33,179	3,237	1	8,246	1,024	79	1,680	608	1	1,035	36	103	8,791	133	121	10,922	148	240
1996	34,085	2,202	1	9,307	639	27	1,517	747	1	1,110	42	83	8,073	157	119	8,293	173	368
1997	32,934	321	9	8,771	1,123	19	1,357	617	1	813	58	38	6,547	178	80	8,175	245	218
1998	32,841	2,964	3	10,169	327	634	1,306	343	0	998	25	32	7,048	241	49	7,236	99	175
1999	33,928	4,725	6	9,204	635	93	1,383	1,302	1	924	79	33	7,378	494	97	7,185	140	359
2000	34,616	1,361	3	9,677	1,286	28	1,018	1,278	2	977	49	32	6,787	305	106	8,275	296	288
2001	33,657	655	13	9,347	1,082	91	827	1,137	3	831	68	30	6,425	333	113	9,192	293	271
2002	34,403	2,012	8	9,527	1,202	17	653	1,366	2	826	103	38	6,343	350	103	8,584	311	362
2003*	-	-	-	10,910	-	-	672	-	-	851	-	-	6,508	-	-	-	-	-
2004*	-	-	-	11,359	-	-	707	-	-	851	-	-	6,557	-	-	-	-	-

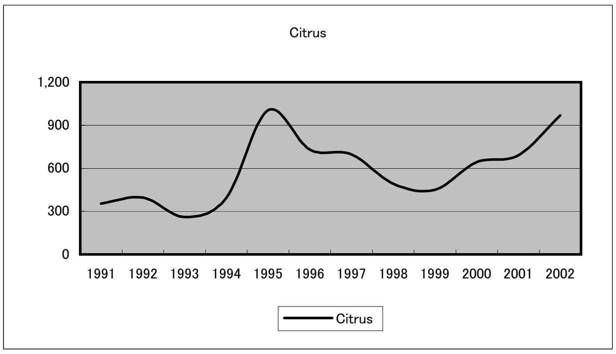
Source: Food and Agriculture Organization of the United Nations Website (FAOSTAT, Agriculture, Commodity Balance, *: data of 2003 and 2004 from Agricultural Production)
http:apps.fao.org/faostat/default.jsp

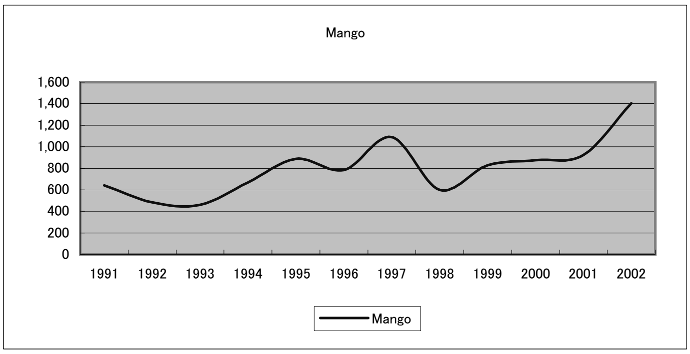
Table 3.1.9 Production of Major Horticultural Crops in Indonesia

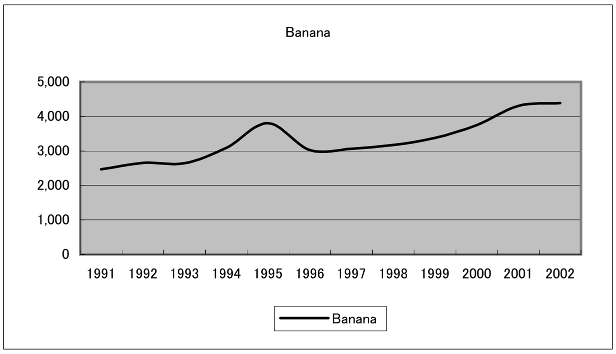
(Unit: 1,000 ton)

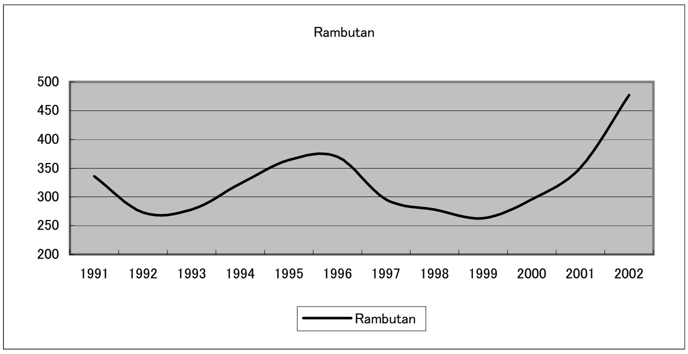
	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Mango	640	485	460	668	889	783	1,088	600	827	876	923	1,403
Citrus	353	396	260	393	1,005	731	696	491	450	644	691	968
Banana	2,472	2,651	2,644	3,087	3,805	3,023	3,057	3,177	3,376	3,747	4,300	4,384
Rambutan	336	273	278	323	364	370	296	278	263	296	351	477
Durian	205	153	171	269	290	267	236	210	194	237	347	525
Chili	627	704	773	724	1,590	1,044	802	849	1,008	728	580	635
Shallot	509	528	561	637	593	769	606	599	938	773	861	767
Tomato	334	401	362	476	652	592	461	547	562	593	484	574
Cabbage	975	1,213	1,266	1,418	1,625	1,580	1,339	1,459	1,448	1,336	1,205	1,233

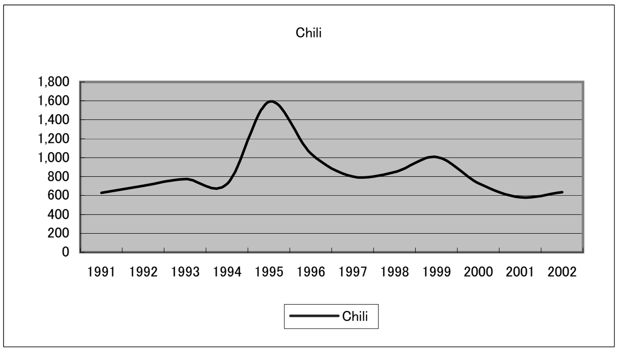
Source : Agricultural Statistics 2003, Ministry of Agriculture

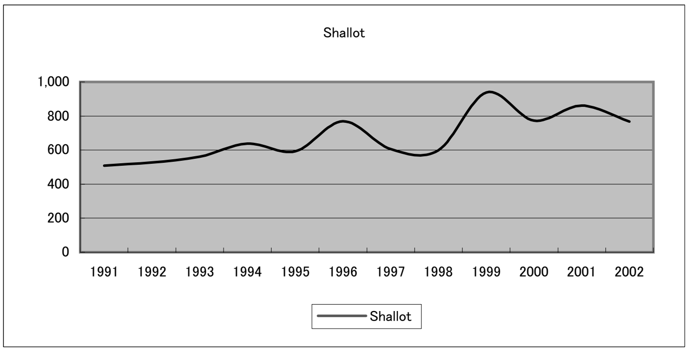


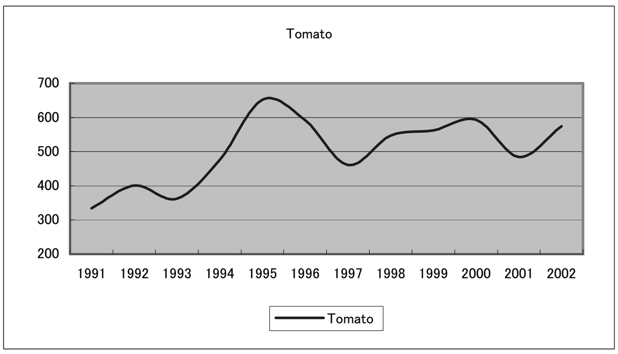












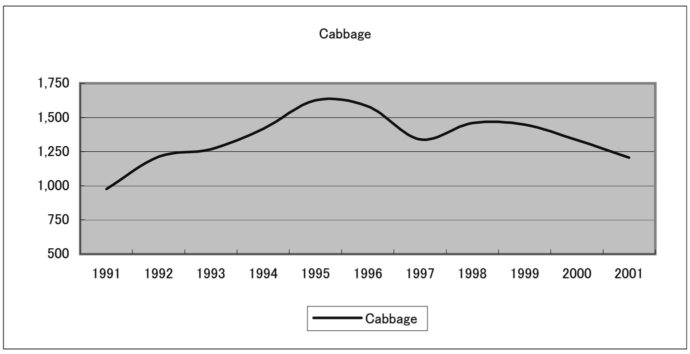


Table 3.1.10 Harvested Area and Production of Major Vegetables by Province (1/3, in 2000)

	Production (ton)						Harvested Area (ha)					
Production	Onion	Potato	Cabbage	Carrot	Chili	Tomato	Onion	Potato	Cabbage	Carrot	Chili	Tomato
1 DI. Aceh	4,402	4,599	2,921	424	16,806	6,079	530	336	200	43	5,049	1,287
2 Sumatera Utara	49,294	215,981	268,896	57,848	90,785	124,305	4,521	15,275	11,641	2,790	15,797	5,453
3 Sumatera Barat	14,944	21,213	45,978	1,528	23,725	10,424	1,760	1,404	1,786	159	6,356	1,496
4 Riau	-	-	-	-	3,835	364	-	-	-	-	2,393	174
5 Jambi	1,319	41,754	16,628	4	6,800	2,787	169	2,630	517	1	2,070	505
6 Sumatera Selatan	231	292	2,325	1,468	18,591	8,360	33	47	238	114	5,705	1,643
7 Bengkulu	1,083	4,268	43,005	8,139	12,834	19,838	140	523	2,690	891	5,025	2,463
8 Lampung	495	2,041	9,049	762	8,400	6,048	70	228	781	143	5,138	1,645
Sumatra	**71,768**	**290,148**	**388,802**	**70,173**	**181,776**	**178,205**	**7,223**	**20,443**	**17,853**	**4,141**	**47,533**	**14,666**
9 DKI Jakarta	-	-	-	-	39	5	-	-	-	-	10	1
10 Jawa Barat	122,389	462,800	501,381	157,830	190,612	291,036	13,310	27,778	21,101	6,418	25,889	13,510
11 Jawa Tengah	237,850	86,424	207,005	43,079	119,497	22,063	25,997	7,176	13,339	3,268	32,203	2,842
12 DI. Yogyakarta	9,751	4	822	5	12,293	738	1,393	2	26	2	1,565	148
13 Jawa Timur	221,958	81,372	131,986	43,334	126,638	30,121	23,079	7,551	9,563	4,360	39,748	3,630
Jawa	**591,948**	**630,600**	**841,194**	**244,248**	**449,079**	**343,963**	**63,779**	**42,507**	**44,029**	**14,048**	**99,415**	**20,131**
14 Bali	7,259	6,384	51,841	3,588	21,400	14,481	974	330	1,376	280	2,860	854
15 NTB	21,315	12	1,034	-	23,487	827	3,045	2	74	-	8,044	263
16 NTT	3,986	853	838	1,233	1,868	1,547	1,208	662	212	216	729	487
17 Timor Timur	-	-	-	-	-	-	-	-	-	-	-	-
Bali, Nusatenggara	**32,560**	**7,249**	**53,713**	**4,821**	**46,755**	**16,855**	**5,227**	**994**	**1,662**	**496**	**11,633**	**1,604**
18 Kalimantan Barat	-	-	22	-	3,793	1,029	-	-	5	-	827	159
19 Kalimantan Tengah	-	-	18	-	1,822	1,312	-	-	5	-	1,064	618
20 Kalimantan Selatan	47	2	18	-	3,494	1,140	5	1	5	-	1,328	418
21 Kalimantan Timur	70	-	414	10	5,347	6,463	10	-	70	4	1,346	811
Kalimantan	**117**	**2**	**472**	**10**	**14,456**	**9,944**	**15**	**1**	**85**	**4**	**4,565**	**2,006**
22 Sulawesi Utara	7,566	15,974	3,846	1,459	16,886	6,511	1,020	5,795	493	280	4,213	1,226
23 Sulawesi Tengah	5,214	354	1,042	238	2,194	5,054	687	134	191	40	1,031	1,139
24 Sulawesi Selatan	60,493	32,720	46,310	5,741	15,674	28,948	5,866	3,182	2,449	898	5,699	3,711
25 Sulawesi Tenggara	994	302	690	3	1,588	2,661	142	12	113	1	568	701
Sulawesi	**74,267**	**49,350**	**51,888**	**7,441**	**36,342**	**43,174**	**7,715**	**9,123**	**3,246**	**1,219**	**11,511**	**6,777**
26 Maluku	328	-	60	-	67	15	18	-	22	-	6	5
27 Irian Jaya	1,830	-	281	-	272	236	61	-	17	-	45	26
Maluku, Irian	**2,158**	**0**	**341**	**0**	**339**	**251**	**79**	**0**	**39**	**0**	**51**	**31**
Total	**772,818**	**977,349**	**1,336,410**	**326,693**	**728,747**	**592,392**	**84,038**	**73,068**	**66,914**	**19,908**	**174,708**	**45,215**

Source：Agricultural Statistics 2001、Ministry of Agriculture

Table 3.1.10 Harvested Area and Production of Major Vegetables by Province (2/3, in 2001)

	Production (ton)						Harvested Area (ha)					
	Onion	Potato	Cabbage	Carrot	Chili	Tomato	Onion	Potato	Cabbage	Carrot	Chili	Tomato
1 DI. Aceh	3,214	6,130	3,233	407	19,236	6,415	416	425	234	49	4,008	1,231
2 Sumatera Utara	28,351	207,918	198,605	47,177	34,681	26,670	3,534	12,093	8,156	3,100	16,830	5,752
3 Sumatera Barat	9,058	10,822	66,216	1,728	26,741	6,341	1,129	972	1,768	211	5,595	1,381
4 Riau	-	-	7	-	3,674	303	-	-	2	-	1,983	176
5 Jambi	1,207	36,959	22,652	37	8,707	3,536	162	2,127	555	9	2,140	570
6 Sumatera Selatan	49	46	1,553	362	11,390	5,858	7	15	225	44	4,303	1,261
7 Bengkulu	615	3,506	28,113	5,221	7,699	9,413	81	145	1,637	494	3,585	1,585
8 Lampung	786	661	7,019	1,074	1,031	7,605	77	48	517	107	3,983	1,831
9 Bangka Belitung	-	-	-	-	892	198	-	-	-	-	310	60
Sumatra	**43,280**	**266,042**	**327,398**	**56,006**	**114,051**	**66,339**	**5,406**	**15,825**	**13,094**	**4,014**	**42,737**	**13,847**
10 DKI Jakarta	-	-	-	-	27	18	-	-	-	-	8	3
11 Jawa Barat	103,326	385,618	490,449	153,854	159,830	264,894	12,699	23,045	19,788	6,711	16,851	11,512
12 Jawa Tengah	195,021	76,926	185,775	26,102	73,029	13,846	23,467	5,932	12,181	2,355	18,504	2,144
13 DI. Yogyakarta	21,514	206	1,358	-	13,315	52	1,705	36	45	-	1,975	91
14 Jawa Timur	344,642	72,053	121,794	38,540	122,435	30,410	24,546	6,331	8,616	3,269	35,642	3,438
15 Banten	496	-	3	178	6,333	4,331	72	-	1	74	2,197	673
Jawa	**664,999**	**534,803**	**799,379**	**218,674**	**374,969**	**313,551**	**62,489**	**35,344**	**40,631**	**12,409**	**75,177**	**17,861**
16 Bali	11,593	5,129	48,611	4,450	21,222	25,781	824	299	1,290	221	3,062	859
17 NTB	103,012	407	3,211	635	26,295	8,467	6,855	44	286	30	7,383	887
18 NTT	14,685	1,411	679	539	1,556	1,226	1,013	409	165	203	680	382
Bali, Nusatenggara	**129,290**	**6,947**	**52,501**	**5,624**	**49,073**	**35,474**	**8,692**	**752**	**1,741**	**454**	**11,125**	**2,128**
19 Kalimantan Barat	-	-	44	-	6,147	2,423	-	-	9	-	1,266	319
20 Kalimantan Tengah	-	-	-	-	2,667	1,635	-	-	-	-	1,198	607
21 Kalimantan Selatan	15	-	7	-	1,366	620	7	-	2	-	964	372
22 Kalimantan Timur	47	-	298	8	3,429	5,974	7	-	36	4	892	665
Kalimantan	**62**	**0**	**349**	**8**	**13,609**	**10,652**	**14**	**0**	**47**	**4**	**4,320**	**1,963**
23 Sulawesi Utara	2,843	12,362	5,740	11,225	6,843	16,520	977	1,579	320	492	2,594	2,112
24 Sulawesi Tengah	2,579	227	624	452	2,829	410	581	93	138	50	818	1,095
25 Sulawesi Selatan	11,607	10,351	15,831	8,410	11,337	21,991	3,345	2,303	2,640	968	4,100	2,499
26 Sulawesi Tenggara	847	144	968	27	1,605	15,020	142	10	141	12	499	806
27 Gorontalo	860	-	11	-	3,944	965	128	-	3	-	529	200
Sulawesi	**18,736**	**23,084**	**23,174**	**20,114**	**26,558**	**54,906**	**5,173**	**3,985**	**3,242**	**1,522**	**8,540**	**6,712**
28 Maluku	3,303	-	831	-	980	1,675	77	3	67	-	172	142
29 Maluku Utara	32	-	-	-	585	498	6	-	-	-	127	66
30 Irian Jaya	1,448	218	1,772	222	639	896	290	62	385	51	358	399
Maluku, Irian	**4,783**	**218**	**2,603**	**222**	**2,204**	**3,069**	**373**	**65**	**452**	**51**	**657**	**607**
Total	**861,150**	**831,094**	**1,205,404**	**300,648**	**580,464**	**483,991**	**82,147**	**55,971**	**59,207**	**18,454**	**142,556**	**43,118**

Source: Agricultural Statistics 2002、Ministry of Agriculture

Table 3.1.10 Harvested Area and Production of Major Vegetables by Province (3/3, in 2002)

	Production (ton)						Harvested Area (ha)					
	Onion	Potato	Cabbage	Carrot	Chili	Tomato	Onion	Potato	Cabbage	Carrot	Chili	Tomato
1 DI. Aceh	3,995	513	802	136	11,778	3,699	528	60	56	24	4,068	1,104
2 Sumatera Utara	25,144	220,377	242,877	40,071	68,790	27,284	2,706	13,754	8,699	2,154	12,284	4,475
3 Sumatera Barat	10,736	8,269	21,535	1,885	21,433	10,107	1,358	1,211	1,836	379	7,105	1,744
4 Riau	-	-	-	-	3,910	151	-	-	-	-	1,674	71
5 Jambi	1,780	38,849	20,528	107	9,712	3,433	228	1,787	1,268	15	1,933	413
6 Sumatera Selatan	26	17	1,483	416	9,193	7,129	3	4	156	52	3,580	1,481
7 Bengkulu	652	1,752	55,898	19,252	20,163	27,486	81	208	3,258	2,465	7,211	6,004
8 Lampung	1,364	508	5,756	485	5,402	5,943	176	62	344	85	3,439	1,301
9 Bangka Belitung	-	-	-	-	1,150	444	-	-	-	-	283	59
Sumatra	**43,697**	**270,285**	**348,879**	**62,352**	**151,531**	**85,676**	**5,080**	**17,086**	**15,617**	**5,174**	**41,577**	**16,652**
10 DKI Jakarta	-	-	-	-	5	1	-	-	-	-	7	2
11 Jawa Barat	96,619	363,327	431,208	144,703	150,948	313,926	10,483	19,882	17,729	6,736	17,867	10,915
12 Jawa Tengah	215,601	118,056	165,888	41,623	89,225	19,585	24,408	7,679	11,537	3,306	24,428	2,705
13 DI. Yogyakarta	27,038	245	2,324	3	16,373	981	2,220	45	67	1	2,282	162
14 Jawa Timur	223,147	84,984	166,551	18,020	127,468	47,152	21,201	5,861	9,277	2,119	34,593	3,272
15 Banten	357	-	-	223	12,288	3,615	82	-	-	41	3,323	606
Jawa	**562,762**	**566,612**	**765,971**	**204,572**	**396,307**	**385,260**	**58,394**	**33,467**	**38,610**	**12,203**	**82,500**	**17,662**
16 Bali	12,502	4,454	50,468	2,801	18,315	27,424	1,072	244	1,353	684	2,215	800
17 NTB	91,151	325	2,868	153	17,210	3,524	8,818	26	391	15	7,961	748
18 NTT	6,524	2,659	1,799	1,194	1,534	1,971	733	681	218	238	837	518
Bali, Nusatenggara	**110,177**	**7,438**	**55,135**	**4,148**	**37,059**	**32,919**	**10,623**	**951**	**1,962**	**937**	**11,013**	**2,066**
19 Kalimantan Barat	-	-	77	-	3,010	1,712	-	-	22	-	1,115	528
20 Kalimantan Tengah	-	-	10	-	2,526	1,629	-	-	1	-	846	503
21 Kalimantan Selatan	120	-	-	-	3,303	1,202	16	-	-	-	1,197	369
22 Kalimantan Timur	114	-	367	-	4,458	4,351	25	-	80	-	1,338	898
Kalimantan	**234**	**0**	**454**	**0**	**13,297**	**8,894**	**41**	**0**	**103**	**0**	**4,496**	**2,298**
23 Sulawesi Utara	1,506	19,880	2,457	2,585	3,873	13,785	191	2,539	325	314	1,773	2,596
24 Sulawesi Tengah	4,911	375	1,207	450	3,477	5,044	647	106	221	78	1,168	1,262
25 Sulawesi Selatan	41,053	28,443	54,384	7,476	21,247	27,174	4,176	2,886	2,639	1,079	5,710	4,929
26 Sulawesi Tenggara	972	36	1,669	96	3,585	9,046	131	20	243	16	827	1,051
27 Gorontalo	147	-	19	-	3,528	794	21	-	5	-	514	86
Sulawesi	**48,589**	**48,734**	**59,736**	**10,607**	**35,710**	**55,843**	**5,166**	**5,551**	**3,433**	**1,487**	**9,992**	**9,924**
28 Maluku	272	-	115	-	350	482	68	-	18	-	80	51
29 Maluku Utara	117	-	84	-	246	-	65	-	28	-	189	-
30 Irian Jaya	724	755	2,469	569	589	4,443	430	277	464	302	751	804
Maluku, Irian	**1,113**	**755**	**2,668**	**569**	**1,185**	**4,925**	**563**	**277**	**510**	**302**	**1,020**	**855**
Total	**766,572**	**893,824**	**1,232,843**	**282,248**	**635,089**	**573,517**	**79,867**	**57,332**	**60,235**	**20,103**	**150,598**	**49,457**

Source: Agricultural Statistics 2003、Ministry of Agriculture

Table 3.1.11 Harvested Area and Production of Major Fruits by Province (1/3, in 2000)

	Production (ton)							Harvested Area (ha)						
Production	Orange	Durian	Mango	Papaya	Pineapple	Banana	Rambutan	Orange	Durian	Mango	Papaya	Pineapple	Banana	Rambutan
1 DI. Aceh	17,074	6,946	6,633	3,386	552	28,076	4,426	826	589	410	108	7	1,096	1,096
2 Sumatera Utara	186,926	18,990	4,816	15,309	24,456	52,132	6,930	6,219	1,305	239	322	886	1,526	1,257
3 Sumatera Barat	25,643	10,421	2,166	6,039	660	60,015	10,957	1,594	1,172	99	95	16	1,434	2,146
4 Riau	50,965	1,139	1,957	2,094	61,090	37,827	9,109	4,044	1,123	88	69	1,108	867	1,624
5 Jambi	1,785	5,259	1,936	2,824	2,673	12,301	4,801	100	1,286	83	77	53	438	1,348
6 Sumatera Selatan	21,218	14,439	6,291	5,222	92,607	39,457	13,915	2,304	2,410	224	91	2,378	3,155	2,512
7 Bengkulu	3,970	2,849	949	1,061	81	11,010	841	234	228	32	39	1	259	149
8 Lampung	8,486	5,954	12,355	11,973	3,589	142,153	17,800	428	785	662	329	74	3,659	4,199
Sumatra	**316,067**	**65,997**	**37,103**	**47,908**	**185,708**	**382,971**	**68,779**	**15,749**	**8,898**	**1,837**	**1,130**	**4,523**	**12,434**	**14,331**
9 DKI Jakarta	3	158	2,396	1,648	-	2,741	2,143	0	24	73	21	-	82	406
10 Jawa Barat	37,228	36,634	107,136	63,892	76,466	1,435,103	62,685	808	2,802	4,822	1,150	820	22,899	8,843
11 Jawa Tengah	31,553	26,989	130,360	54,242	11,285	508,801	47,742	1,463	2,769	7,561	1,075	219	11,046	6,597
12 DI. Yogyakarta	1,097	2,923	13,244	8,420	349	28,581	11,695	72	329	1,008	183	6	678	1,481
13 Jawa Timur	46,488	37,156	390,680	165,195	97,814	706,266	50,395	2,101	2,663	17,051	3,155	1,032	10,265	6,210
Jawa	**116,369**	**103,860**	**643,816**	**293,397**	**185,914**	**2,681,492**	**174,660**	**4,444**	**8,587**	**30,515**	**5,584**	**2,077**	**44,970**	**23,537**
14 Bali	55,489	4,008	18,576	8,085	455	60,381	7,552	2,503	220	1,092	203	9	1,886	915
15 NTB	1,694	1,184	27,366	3,039	5,496	69,048	2,646	95	227	2,145	140	165	2,980	744
16 NTT	19,039	160	65,767	42,521	3,013	173,446	2,074	1,423	25	1,710	852	44	2,585	147
17 Timor Timur	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bali, Nusatenggara	**76,222**	**5,352**	**111,709**	**53,645**	**8,964**	**302,875**	**12,272**	**4,021**	**472**	**4,947**	**1,195**	**218**	**7,451**	**1,806**
18 Kalimantan Barat	1,034	16,745	1,446	2,289	1,381	46,055	7,485	59	1,058	62	68	17	1,118	1,476
19 Kalimantan Tengah	2,065	5,772	1,555	1,946	6,030	14,395	7,388	132	434	68	53	57	448	1,389
20 Kalimantan Selatan	10,687	6,701	2,461	3,842	1,225	22,706	6,128	826	1,084	135	99	22	711	2,136
21 Kalimantan Timur	3,934	1,637	1,619	3,929	1,718	24,247	4,502	240	144	54	173	44	569	559
Kalimantan	**17,720**	**30,855**	**7,081**	**12,006**	**10,354**	**107,403**	**25,503**	**1,257**	**2,720**	**319**	**393**	**140**	**2,846**	**5,560**
22 Sulawesi Utara	409	1,366	3,060	2,270	296	11,479	701	37	149	148	67	4	365	117
23 Sulawesi Tengah	1,151	1,552	4,446	1,091	143	34,354	417	111	103	167	46	2	581	75
24 Sulawesi Selatan	110,120	13,401	61,474	15,685	1,478	145,999	12,089	10,943	1,467	5,939	356	24	4,158	2,239
25 Sulawesi Tenggara	4,995	738	4,168	2,782	421	34,601	1,662	312	56	292	80	5	482	483
Sulawesi	**116,675**	**17,057**	**73,148**	**21,828**	**2,338**	**226,433**	**14,869**	**11,403**	**1,775**	**6,546**	**549**	**35**	**5,586**	**2,914**
26 Maluku	153	3,459	78	364	16	4,326	11	29	563	8	32	1	193	8
27 Irian Jaya	843	44	92	59	5	1,462	9	217	6	13	3	0	59	2
Maluku, Irian	**996**	**3,503**	**170**	**423**	**21**	**5,788**	**20**	**246**	**569**	**21**	**35**	**1**	**252**	**10**
Total	**665,267**	**241,063**	**879,318**	**434,429**	**393,299**	**3,746,419**	**310,018**	**39,424**	**25,431**	**44,409**	**8,977**	**9,372**	**76,694**	**50,670**

Source：Agricultural Statistics 2001、Ministry of Agriculture

Table 3.1.11 Harvested Area and Production of Major Fruits by Province (2/3, in 2001)

	Production (ton)							Harvested Area (ha)						
	Orange	**Durian**	**Mango**	**Papaya**	**Pineapple**	**Banana**	**Rambutan**	**Orange**	**Durian**	**Mango**	**Papaya**	**Pineapple**	**Banana**	**Rambutan**
1 DI. Aceh	13,834	11,807	7,904	5,363	747	26,491	8,439	788	795	246	112	10	708	1,865
2 Sumatera Utara	195,352	40,530	10,585	16,795	53,707	60,235	8,341	10,354	3,465	406	388	925	1,705	1,809
3 Sumatera Barat	38,543	14,215	3,699	6,925	1,634	64,099	13,521	2,248	1,175	134	121	47	1,523	1,994
4 Riau	58,428	11,358	4,236	4,902	80,306	37,697	14,175	3,771	931	190	130	1,156	787	4,185
5 Jambi	4,380	22,531	3,276	4,445	3,035	19,841	10,364	259	3,889	135	97	51	403	2,844
6 Sumatera Selatan	35,332	38,225	11,360	7,404	132,581	79,108	14,921	2,660	5,573	350	498	1,620	2,911	3,564
7 Bengkulu	5,124	5,990	1,106	1,685	117	10,339	3,274	360	757	51	41	1	207	628
8 Lampung	15,613	10,303	15,270	12,603	53,183	142,470	24,835	968	1,744	674	253	730	4,824	4,763
9 Bangka Belitung	1,598	1,872	577	917	454	4,857	918	92	292	36	17	6	150	167
Sumatra	**368,204**	**156,831**	**58,013**	**61,039**	**325,764**	**445,137**	**98,788**	**21,500**	**18,621**	**2,222**	**1,657**	**4,546**	**13,218**	**21,819**
10 DKI Jakarta	8	266	2,779	2,037	-	2,870	2,701	0	44	68	33	-	50	394
11 Jawa Barat	23,288	29,123	113,579	68,096	72,691	1,431,941	68,474	637	15,556	4,492	892	951	19,591	8,762
12 Jawa Tengah	58,477	26,587	120,006	52,072	12,127	522,261	40,863	1,855	2,307	7,270	1,086	238	9,380	6,157
13 DI. Yogyakarta	976	2,503	21,842	8,174	477	39,633	11,576	62	320	1,235	176	5	759	1,709
14 Jawa Timur	67,905	40,564	415,033	201,055	66,812	700,836	45,343	2,392	2,597	19,709	3,556	1,973	10,515	8,346
15 Banten	1,464	11,960	4,777	4,975	456	208,854	5,822	57	917	208	123	4	3,686	1,157
Jawa	**152,118**	**111,003**	**678,016**	**336,409**	**152,563**	**2,906,395**	**174,779**	**5,003**	**21,741**	**32,982**	**5,866**	**3,171**	**43,981**	**26,525**
15 Bali	48,386	8,497	28,865	7,219	530	90,094	16,008	2,338	474	1,957	208	15	2,311	1,896
16 NTB	1,536	1,456	18,158	4,640	1,387	283,548	2,188	104	244	1,175	131	31	3,217	555
17 NTT	21,729	251	68,071	49,793	2,276	167,757	1,957	1,036	16	1,706	1,267	25	3,846	110
Bali, Nusatenggara	**71,651**	**10,204**	**115,094**	**61,652**	**4,193**	**541,399**	**20,153**	**3,478**	**734**	**4,838**	**1,606**	**71**	**9,374**	**2,561**
18 Kalimantan Barat	1,283	15,111	1,539	2,685	1,991	119,687	8,075	77	1,559	103	72	24	1,464	1,391
19 Kalimantan Tengah	3,379	7,235	1,250	2,462	5,175	16,466	12,575	154	551	63	46	62	693	2,310
20 Kalimantan Selatan	19,119	11,707	4,099	4,525	1,316	29,409	11,761	971	1,563	184	105	25	936	2,877
21 Kalimantan Timur	5,510	7,163	3,370	5,433	868	27,945	8,080	243	760	104	129	15	883	1,325
Kalimantan	**29,291**	**41,216**	**10,258**	**15,105**	**9,350**	**193,507**	**40,491**	**1,445**	**4,433**	**454**	**352**	**126**	**3,976**	**7,903**
22 Sulawesi Utara	1,009	2,683	3,668	3,091	511	13,567	737	56	182	183	118	5	388	146
23 Sulawesi Tengah	3,212	2,967	4,614	2,908	332	33,061	1,433	221	212	168	60	4	680	201
24 Sulawesi Selatan	54,708	16,507	40,264	14,103	1,428	119,884	11,126	2,956	3,421	2,674	399	23	4,281	3,328
25 Sulawesi Tenggara	9,496	1,661	9,167	3,515	375	33,443	2,908	449	130	534	93	6	582	623
26 Gorontalo	160	439	1,441	934	43	4,300	164	10	29	70	51	0	144	164
Sulawesi	**68,585**	**24,257**	**59,154**	**24,551**	**2,689**	**204,255**	**16,368**	**3,692**	**3,974**	**3,629**	**721**	**38**	**6,075**	**4,462**
27 Maluku	5	3,097	1,778	1,180	179	2,816	38	1	26	49	31	3	91	9
28 Maluku Utara	194	364	580	78	69	3,119	70	18	266	21	5	1	98	25
29 Irian Jaya	1,385	146	401	557	161	3,794	188	230	17	13	21	4	110	159
Maluku, Irian	**1,584**	**3,607**	**2,759**	**1,815**	**409**	**9,729**	**296**	**249**	**309**	**83**	**57**	**8**	**299**	**193**
Total	**691,433**	**347,118**	**923,294**	**500,571**	**494,968**	**4,300,422**	**350,875**	**35,367**	**49,812**	**44,208**	**10,259**	**7,960**	**76,923**	**63,463**

Source: Agricultural Statistics 2002、Ministry of Agriculture

Table 3.1.11 Harvested Area and Production of Major Fruits by Province (3/3, in 2002)

Province	Production (ton)							Harvested Area (ha)						
	Orange	Durian	Mango	Papaya	Pineapple	Banana	Rambutan	Orange	Durian	Mango	Papaya	Pineapple	Banana	Rambutan
1 DI. Aceh	32,191	28,422	9,120	7,538	726	27,833	9,412	837	2,029	1,294	120	8	562	1,320
2 Sumatera Utara	273,847	63,201	17,318	16,776	47,923	93,467	31,092	10,321	3,058	1,353	596	870	2,638	4,558
3 Sumatera Barat	39,040	40,193	3,024	6,333	621	46,389	39,069	2,819	2,568	206	88	6	1,032	3,733
4 Riau	69,421	12,000	3,926	6,991	103,599	31,243	13,481	4,022	1,305	535	140	1,137	829	1,663
5 Jambi	5,274	23,237	3,660	7,406	1,562	14,664	9,818	253	1,348	377	116	53	533	1,445
6 Sumatera Selatan	42,638	81,551	7,979	10,915	89,700	95,687	16,967	2,728	5,220	1,228	500	1,187	2,382	1,841
7 Bengkulu	5,067	4,540	1,269	5,396	60	14,237	3,488	258	690	150	122	1	321	599
8 Lampung	41,107	18,385	22,088	15,274	32,213	184,554	43,710	1,950	3,060	2,822	265	457	5,833	4,983
9 Bangka Belitung	1,143	3,002	659	682	53	1,154	415	166	318	89	10	1	26	100
Sumatra	**509,728**	**274,531**	**69,043**	**77,311**	**276,457**	**509,228**	**167,452**	**23,354**	**19,596**	**8,054**	**1,957**	**3,720**	**14,156**	**20,242**
10 DKI Jakarta	1	80	2,513	1,273	-	1,490	708	-	22	272	17	-	42	237
11 Jawa Barat	26,584	39,636	192,759	68,366	124,804	1,473,460	73,244	481	2,120	12,272	890	1,160	16,347	7,333
12 Jawa Tengah	51,075	35,968	163,607	49,295	13,651	503,841	47,341	1,337	3,713	27,472	1,011	280	8,643	9,657
13 DI. Yogyakarta	1,320	7,025	23,343	8,167	374	41,306	26,064	95	852	4,135	200	4	744	5,197
14 Jawa Timur	150,476	46,627	679,225	284,534	103,600	731,230	48,165	4,421	3,067	96,830	4,035	2,727	10,141	9,667
15 Banten	1,364	4,751	5,505	3,804	244	229,511	3,881	45	553	1,014	109	3	4,362	803
Jawa	**230,820**	**134,087**	**1,066,952**	**415,439**	**242,673**	**2,980,838**	**199,403**	**6,379**	**10,327**	**141,995**	**6,262**	**4,174**	**40,279**	**32,894**
15 Bali	45,279	5,014	32,025	7,801	1,402	124,253	13,015	1,849	334	5,299	191	25	2,314	2,132
16 NTB	1,150	1,276	31,527	4,742	14,329	83,529	2,210	40	160	3,253	88	885	4,502	393
17 NTT	24,506	50	72,150	52,136	5,108	189,543	2,412	1,247	20	8,041	776	42	2,169	195
Bali, Nusatenggara	**70,935**	**6,340**	**135,702**	**64,679**	**20,839**	**397,325**	**17,637**	**3,136**	**514**	**16,593**	**1,055**	**952**	**8,985**	**2,720**
18 Kalimantan Barat	2,402	27,175	3,020	2,887	3,042	55,711	26,042	151	2,968	342	59	18	635	3,059
19 Kalimantan Tengah	3,918	8,265	2,024	2,801	4,328	16,810	9,491	167	764	221	50	46	679	1,569
20 Kalimantan Selatan	19,035	10,128	2,306	4,360	1,009	42,445	13,688	945	1,243	700	85	23	1,380	2,354
21 Kalimantan Timur	4,200	19,587	3,584	5,780	1,599	42,905	11,093	195	1,763	404	137	21	928	1,407
Kalimantan	**29,555**	**65,155**	**10,934**	**15,828**	**9,978**	**157,871**	**60,314**	**1,458**	**6,738**	**1,667**	**331**	**108**	**3,622**	**8,389**
22 Sulawesi Utara	1,939	10,277	19,532	3,439	2,544	44,833	10,256	48	521	1,551	58	36	978	1,272
23 Sulawesi Tengah	7,010	3,962	7,303	2,975	310	45,063	2,935	353	316	840	47	3	773	547
24 Sulawesi Selatan	108,174	21,986	79,544	18,940	1,639	165,036	14,268	12,513	2,425	11,856	354	26	4,027	1,566
25 Sulawesi Tenggara	6,374	3,608	9,963	3,376	343	36,554	4,040	330	371	1,591	88	4	514	834
26 Gorontalo	578	87	2,534	1,007	29	2,094	0	27	7	272	40	1	72	0
Sulawesi	**124,075**	**39,920**	**118,876**	**29,737**	**4,865**	**293,580**	**31,499**	**13,271**	**3,640**	**16,110**	**587**	**70**	**6,364**	**4,219**
27 Maluku	1,607	1,950	279	700	65	3,374	73	56	9	50	28	1	127	37
28 Maluku Utara	603	17	135	313	133	28,163	270	83	100	32	16	3	911	300
29 Irian Jaya	809	2,204	985	1,187	578	14,005	293	87	109	158	44	6	307	270
Maluku, Irian	**3,019**	**4,171**	**1,399**	**2,200**	**776**	**45,542**	**636**	**226**	**218**	**240**	**88**	**10**	**1,345**	**607**
Total	**968,132**	**524,204**	**1,402,906**	**605,194**	**555,588**	**4,384,384**	**476,941**	**47,824**	**41,033**	**184,659**	**10,280**	**9,034**	**74,751**	**69,071**

Source: Agricultural Statistics 2003, Ministry of Agriculture

Table 3.1.12 Transition of Harvested Area and Production of Major Estate Crops

(1) Production Unit:1,000 ton

Estate Crops		1996	1997	1998	1999	2000	2001	2002*)	2003**)
Rubber	Large estate	335	331	333	294	376	316	327	333
	Small farmers	1,193	1,175	1,381	1,206	1,125	1,723	1,776	1,789
	Total	1,528	1,506	1,714	1,500	1,501	2,040	2,104	2,121
Coconut	Large estate	74	73	88	91	97	94	88	88
	Small farmers	2,687	2,620	2,690	2,904	2,951	3,069	3,011	3,142
	Total	2,761	2,693	2,778	2,995	3,048	3,163	3,099	3,229
Oil Palm	Large estate	2,560	4,081	4,013	4,455	4,575	5,016	5,277	5,457
	Small farmers	1,134	1,293	1,348	1,544	1,978	2,801	3,134	3,649
	Total	3,694	5,374	5,361	5,999	6,552	7,817	8,412	9,106
Coffee	Large estate	27	31	29	28	28	27	26	26
	Small farmers	436	396	470	494	585	543	666	669
	Total	463	427	499	521	614	570	692	696
Cocoa	Large estate	47	66	61	59	58	58	57	57
	Small farmers	304	264	370	305	354	560	564	573
	Total	351	330	431	364	411	618	622	630
Tea	Large estate	132	121	133	126	123	127	120	123
	Small farmers	34	33	34	35	40	40	45	45
	Total	166	154	167	161	163	167	165	168
Cashew	Large estate	1	1	1	1	0	0	0	0
	Small farmers	67	73	87	90	84	91	116	118
	Total	68	74	88	91	84	91	116	118
Sugarcane	Large estate	2,160	2,187	1,929	1,801	1,780	1,825	1,854	1,877
	Small farmers	0	0	0	0	0	0	0	0
	Total	2,160	2,187	1,929	1,801	1,780	1,825	1,854	1,877

(2)Planted area Unit: 1,000ha

Estate Crops		1996	1997	1998	1999	2000	2001	2002*)	2003**)
Rubber	Large estate	538	558	549	545	549	548	545	543
	Small farmers	2,979	2,958	3,082	3,087	3,046	3,625	3,706	3,797
	Total	3,517	3,516	3,631	3,632	3,595	4,173	4,252	4,340
Coconut	Large estate	132	120	126	94	95	79	79	79
	Small farmers	3,604	3,548	3,580	3,586	3,602	3,819	3,806	3,804
	Total	3,736	3,668	3,706	3,679	3,697	3,898	3,885	3,883
Oil Palm	Large estate	1,146	1,739	1,878	2,398	2,441	2,692	2,786	2,875
	Small farmers	739	813	891	1,038	1,190	1,566	1,795	1,811
	Total	1,885	2,552	2,769	3,436	3,631	4,258	4,581	4,686
Coffee	Large estate	47	62	63	63	63	63	61	61
	Small farmers	1,032	1,105	1,068	1,059	1,322	1,260	1,354	1,361
	Total	1,079	1,167	1,131	1,122	1,385	1,322	1,415	1,422
Cocoa	Large estate	130	146	151	155	158	159	157	155
	Small farmers	489	381	437	535	641	708	803	817
	Total	619	527	588	689	799	867	960	972
Tea	Large estate	89	89	91	92	90	83	84	85
	Small farmers	65	65	66	65	67	68	66	68
	Total	154	154	157	157	157	151	151	152
Cashew	Large estate	9	9	9	10	10	0	0	0
	Small farmers	484	490	522	548	572	559	601	604
	Total	493	499	531	558	582	559	601	604
Sugarcane	Large estate	400	378	405	391	389	394	398	399
	Small farmers	0	0	0	0	0	0	0	0
	Total	400	378	405	391	389	394	398	399
Total	Large estate	2,491	3,101	3,272	3,747	3,794	4,017	4,111	4,197
	Small farmers	9,392	9,360	9,646	9,917	10,440	11,604	12,132	12,261
	Total	11,883	12,461	12,918	13,664	14,234	15,620	16,243	16,458

Source : Statistic Indonesia 2003、Central Bureau of Statistics
Note : *) Preliminary Figures
**) Very Preliminary Figures

Table 3.1.13 Harvested Area and Production of Major Estate Crops by Province (1/3, in 1999)

	Production (ton)								Harvested Area (ha)							
Production	Rubber*1	Oil Palm*1	Coffee Robusta*2	Coffee Arabica*2	Cocoa*1	Cashew	Sugarcane*1	Tobacco*1	Rubber*1	Oil Palm*1	Coffee Robusta*2	Coffee Arabica*2	Cocoa*1	Cashew	Sugarcane*1	Tobacco*1
1 DI. Aceh	28,718	368,651	15,282	15,206	3,595	54	-	213	71,987	206,145	39,294	21,752	9,191	827	-	434
2 Sumatera Utara	334,555	2,395,853	34,819	-	42,219	24	57,513	1,972	472,404	627,545	62,520	-	54,290	40	12,640	3,530
3 Sumatera Barat	47,698	321,624	13,652	-	4,628	-	-	531	125,632	168,027	30,456	-	10,466	-	-	1,042
4 Riau	178,598	1,262,434	1,862	-	4,754	-	-	-	433,171	633,413	6,035	-	5,029	-	-	-
5 Jambi	200,190	303,625	5,123	-	603	-	-	63	541,894	265,571	27,190	-	7,755	-	-	111
6 Sumatera Selatan	313,541	459,140	138,475	-	177	6	43,984	20	756,054	329,242	259,857	-	790	258	11,504	100
7 Bengkulu	26,289	85,250	50,894	439	1,063	-	-	25	65,188	54,191	90,179	1,351	17,489	-	-	59
8 Lampung	41,492	97,774	94,709	-	5,684	3	497,832	126	72,955	99,557	131,536	-	13,304	41	87,794	263
Sumatra	**1,171,081**	**5,294,351**	**354,816**	**15,645**	**62,723**	**87**	**599,329**	**2,950**	**2,539,285**	**2,383,691**	**647,067**	**23,103**	**118,314**	**1,166**	**111,938**	**5,539**
9 DKI Jakarta	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10 Jawa Barat	53,064	29,305	6,452	-	5,890	-	62,272	3,294	89,023	20,926	21,698	-	19,309	944	26,574	6,293
11 Jawa Tengah	23,735	-	9,670	481	1,880	6,294	112,551	29,198	30,173	-	31,432	3,681	7,706	32,888	36,529	37,307
12 DI. Yogyakarta	-	-	465	-	131	336	19,438	1,238	-	-	1,766	-	2,486	19,396	5,005	2,147
13 Jawa Timur	18,999	-	39,201	11,839	14,802	8,802	658,281	67,667	24,531	-	85,803	17,442	31,465	56,265	142,979	91,082
Jawa	**95,798**	**29,305**	**55,788**	**12,320**	**22,703**	**15,432**	**852,542**	**101,397**	**143,727**	**20,926**	**140,699**	**21,123**	**60,966**	**109,493**	**211,087**	**136,829**
14 Bali	79	-	8,652	5,368	3,440	2,997	-	3,339	104	-	23,939	16,017	6,224	15,814	-	1,919
15 Nusa Tenggara Barat	-	-	3,051	-	527	5,513	-	26,510	-	-	10,165	-	3,759	52,098	-	18,908
16 Nusa Tenggara Timur	-	-	12,634	-	14,925	11,304	-	1,016	-	-	60,164	-	25,613	125,470	-	3,485
Nusa Tenggara	**79**	**0**	**24,337**	**5,368**	**18,892**	**19,814**	**0**	**30,865**	**104**	**0**	**94,268**	**16,017**	**35,596**	**193,382**	**0**	**24,312**
17 Timor Timur	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18 Kalimantan Barat	162,233	366,345	3,377	-	1,513	-	-	-	442,445	314,616	9,924	-	8,629	-	-	-
19 Kalimantan Tengah	74,162	35,611	583	-	117	8	1,445	-	254,399	99,877	4,959	-	2,142	292	-	-
20 Kalimantan Selatan	64,249	47,836	2,216	-	229	40	-	-	142,361	105,999	8,857	-	4,642	353	1,277	-
21 Kalimantan Timur	21,505	73,221	4,476	-	12,254	17	-	-	52,100	116,888	15,316	-	32,962	520	-	-
Kalimantan	**322,149**	**523,013**	**10,652**	**0**	**14,113**	**65**	**1,445**	**0**	**891,305**	**637,380**	**39,056**	**0**	**48,375**	**1,165**	**1,277**	**0**
22 Sulawesi Utara	-	-	4,219	8	1,568	700	20,249	-	-	-	9,300	408	10,160	3,611	5,292	-
23 Sulawesi Tengah	4,226	18,692	5,115	-	73,533	1,940	-	-	5,909	39,318	20,412	-	72,696	22,763	-	-
24 Sulawesi Selatan	9,473	88,014	21,842	16,590	120,659	22,887	20,368	164	9,720	62,993	45,059	45,212	157,025	75,179	12,617	579
25 Sulawesi Tenggara	-	-	3,164	-	33,973	27,979	-	8	-	-	13,103	-	99,424	134,815	-	12
Sulawesi	**13,699**	**106,706**	**34,340**	**16,598**	**229,733**	**53,506**	**40,617**	**172**	**15,629**	**102,311**	**87,874**	**45,620**	**339,305**	**236,368**	**17,909**	**591**
26 Maluku	818	-	1,228	-	6,224	1,322	-	-	1,788	-	7,359	-	34,520	11,069	-	-
27 Irian Jaya	735	51,524	480	14	13,087	78	-	-	3,222	27,855	4,391	700	30,639	4,939	-	-
Maluku + Irian Jaya	**1,553**	**51,524**	**1,708**	**14**	**19,311**	**1,400**	**0**	**0**	**5,010**	**27,855**	**11,750**	**700**	**65,159**	**16,008**	**0**	**0**
Total	**1,604,359**	**6,004,899**	**481,641**	**49,945**	**367,475**	**90,304**	**1,493,933**	**135,384**	**3,595,060**	**3,172,163**	**1,020,714**	**106,563**	**667,715**	**557,582**	**342,211**	**167,271**

Source :
*1: Agricultural Statistics 2001、Ministry of Agriculture
*2: Statistical Estate Crops of Indonesia 1999 - 2001

Table 3.1.13 Harvested Area and Production of Major Estate Crops by Province (2/3, in 2000)

	Production (ton)						Harvested Area (ha)					
	Rubber	**Oil Palm**	**Coffee**	**Cocoa**	**Sugarcane**	**Tobacco**	**Rubber**	**Oil Palm**	**Coffee**	**Cocoa**	**Sugarcane**	**Tobacco**
1 DI. Aceh	30,567	434,107	56,750	10,642	-	216	99,277	218,825	122,941	22,550	-	448
2 Sumatera Utara	310,832	2,580,453	38,577	45,718	33,020	3,396	454,027	650,530	62,707	61,150	11,193	3,504
3 Sumatera Barat	45,889	332,380	14,264	4,865	-	529	124,341	188,015	31,509	10,087	-	1,049
4 Riau	188,782	1,666,725	2,092	2,678	-	-	421,670	769,804	11,704	5,462	-	-
5 Jambi	189,137	470,240	5,107	232	-	69	531,644	286,910	28,755	1,001	-	124
6 Sumatera Selatan	290,892	798,766	140,862	72	44,336	22	727,630	341,869	283,948	383	12,040	107
7 Bengkulu	23,972	82,642	47,908	1,821	-	22	69,630	73,944	90,778	20,867	-	64
8 Lampung	40,398	140,736	138,131	6,217	618,966	-	74,094	103,120	287,578	14,917	86,573	-
9 Bangka Belitung	10,915	91,100	16	47		-	37,711	110,762	74	282	-	
Sumatra	**1,131,384**	**6,597,149**	**443,707**	**72,292**	**696,322**	**4,254**	**2,540,024**	**2,743,779**	**919,994**	**136,699**	**109,806**	**5,296**
10 DKI Jakarta	-	-	-	-	-	-	-	-	-	-	-	-
11 Jawa Barat	34,240	3,517	4,205	3,649	89,149	3,284	47,709	3,747	12,876	13,030	25,383	6,292
12 Jawa Tengah	22,843	-	15,105	1,089	128,534	32,452	29,999	-	36,879	5,569	30,687	37,292
13 DI. Yogyakarta	-	-	463	255	23,319	1,224	-	-	1,779	3,008	5,100	2,166
14 Jawa Timur	16,357	-	52,948	14,618	704,243	71,663	25,546	-	105,395	30,748	148,804	91,090
15 Banten	8,766	30,556	2,033	804	-	-	23,990	17,375	8,807	4,044	-	-
Jawa	**82,206**	**34,073**	**74,754**	**20,415**	**945,245**	**108,623**	**127,244**	**21,122**	**165,736**	**56,399**	**209,974**	**136,840**
16 Bali	85	-	24,010	4,424	-	3,324	122	-	43,386	6,564	-	1,934
17 Nusa Tenggara Barat	-	-	3,539	579	-	26,598	-	-	10,946	3,907	-	18,916
18 Nusa Tenggara Timur	-	-	13,429	4,495	-	222	-	-	57,882	31,595	-	3,490
Nusa Tenggara	**85**	**0**	**40,978**	**9,498**	**0**	**30,144**	**122**	**0**	**112,214**	**42,066**	**0**	**24,340**
19 Kalimantan Barat	146,017	411,313	2,762	1,246	-	-	423,777	360,781	9,848	8,199	-	-
20 Kalimantan Tengah	68,770	113,916	602	44	4,841	-	254,713	201,733	5,494	1,615	-	-
21 Kalimantan Selatan	52,382	82,455	2,473	201	-	-	131,782	135,491	7,955	2,511	3,167	-
22 Kalimantan Timur	17,689	133,141	4,940	12,247	-	-	51,125	146,384	16,022	32,444	-	-
Kalimantan	**284,858**	**740,825**	**10,777**	**13,738**	**4,841**	**0**	**861,397**	**844,389**	**39,319**	**44,769**	**3,167**	**0**
23 Sulawesi Utara	-	-	4,841	2,376	17,571	-	-	-	6,412	5,536	5,794	-
24 Sulawesi Tengah	2,126	25,947	5,211	60,453	-	-	2,372	40,232	20,392	79,043	-	-
25 Sulawesi Selatan	9,471	91,554	40,039	151,630	26,025	166	826	66,593	94,701	205,150	11,919	602
26 Sulawesi Tenggara	-	-	2,861	70,291	-	9	-	1,102	12,224	117,415	-	25
27 Gorontalo	-	-	494	251	-	-	-	-	-	3,095	-	-
Sulawesi	**11,597**	**117,501**	**53,446**	**285,001**	**43,596**	**175**	**3,198**	**107,927**	**133,729**	**410,239**	**17,713**	**627**
28 Maluku	97	-	664	848	-	-	414	-	3,514	6,060	-	-
29 Maluku Utara	-	-	567	5,754	-	-	-		3,845	26,582	-	
30 Irian Jaya	672	90,953	116	13,596	-	-	3,222	52,392	10,644	27,103	-	-
Maluku + Irian Jaya	**769**	**90,953**	**1,347**	**20,198**	**0**	**0**	**3,636**	**52,392**	**18,003**	**59,745**	**0**	**0**
Total	**1,510,899**	**7,580,501**	**625,009**	**421,142**	**1,690,004**	**143,196**	**3,535,621**	**3,769,609**	**1,388,995**	**749,917**	**340,660**	**167,103**

Source：Agricultural Statistics 2002、Ministry of Agriculture

Table 3.1.13 Harvested Area and Production of Major Estate Crops by Province (3/3, in 2001*)

	Production (ton)							Harvested Area (ha)						
	Rubber	Oil Palm	Coffee	Cocoa	Sugarcane	Tobacco	Tea	Rubber	Oil Palm	Coffee	Cocoa	Sugarcane	Tobacco	Tea
1 DI. Aceh	45,748	450,963	41,623	11,142	-	193	-	97,973	221,325	101,134	23,429	-	869	-
2 Sumatera Utara	343,963	2,594,194	39,038	46,559	33,754	1,837	17,641	441,231	652,880	62,713	62,140	11,331	3,225	10,378
3 Sumatera Barat	51,230	345,248	13,267	5,284	-	1,042	7,443	103,374	191,515	31,509	10,660	-	1,041	8,199
4 Riau	193,602	1,728,465	2,095	2,825	-	-	-	410,093	788,844	11,706	5,821	-	-	-
5 Jambi	170,614	517,439	5,222	256	-	43	6,068	443,081	301,307	28,761	1,128	-	102	2,575
6 Sumatera Selatan	273,434	875,822	141,079	80	45,321	25	2,529	684,994	360,510	272,856	437	12,185	61	1,521
7 Bengkulu	33,551	90,045	47,820	1,880	-	25	1,715	75,838	74,944	90,909	20,958	-	59	1,425
8 Lampung	43,859	155,270	100,185	6,725	632,724	53	12	78,411	107,120	203,280	15,546	87,612	109	39
9 Bangka Belitung	10,733	92,724	18	54		-	1	30,916	111,762	80	285	-	-	2
Sumatra	**1,166,734**	**6,850,170**	**390,347**	**74,805**	**711,799**	**3,218**	**35,409**	**2,365,911**	**2,810,207**	**802,948**	**140,404**	**111,128**	**5,466**	**24,139**
10 DKI Jakarta	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11 Jawa Barat	37,100	4,167	4,263	4,403	91,131	4,505	117,826	54,381	3,747	13,017	13,104	25,688	6,839	114,520
12 Jawa Tengah	23,139	-	14,528	1,108	131,391	46,130	13,006	29,962	-	36,903	5,615	31,055	66,789	12,207
13 DI. Yogyakarta	-	-	492	276	23,837	2,201	66	-	-	1,811	3,039	5,161	3,507	303
14 Jawa Timur	16,790	-	53,133	15,035	719,897	137,361	5,771	24,575	-	105,402	30,839	150,587	149,538	5,083
15 Banten	10,529	32,704	2,085	864	-	-	6	24,163	17,375	8,906	4,097	-	-	32
Jawa	**87,558**	**36,871**	**74,501**	**21,686**	**966,256**	**190,197**	**136,675**	**133,081**	**21,122**	**166,039**	**56,694**	**212,491**	**226,673**	**132,145**
16 Bali	90	-	18,560	4,600	-	1,778	-	122	-	40,109	7,164	-	1,219	-
17 Nusa Tenggara Barat	-	-	3,685	655	-	30,424	-	-	-	10,965	4,284	-	21,923	-
18 Nusa Tenggara Timur	-	-	13,447	4,806	-	1,076	-	-	-	57,890	32,407	-	2,751	-
Nusa Tenggara	**90**	**0**	**35,692**	**10,061**	**0**	**33,278**	**0**	**122**	**0**	**108,964**	**43,855**	**0**	**25,893**	**0**
19 Kalimantan Barat	144,031	453,533	2,766	1,474	-	-	-	369,301	401,761	9,859	8,629	-	-	-
20 Kalimantan Tengah	116,638	129,775	612	78	-	-	-	263,659	259,018	5,510	1,849	-	-	-
21 Kalimantan Selatan	59,760	100,213	2,479	212	4,949	-	-	129,229	150,841	7,949	2,548	3,205	-	-
22 Kalimantan Timur	19,281	150,904	4,952	12,374	-	1	-	62,663	160,729	16,025	32,843	-	1	-
Kalimantan	**339,710**	**834,425**	**10,809**	**14,138**	**4,949**	**1**	**0**	**824,852**	**972,349**	**39,343**	**45,869**	**3,205**	**1**	**0**
23 Sulawesi Utara	-	-	4,822	2,404	17,962	-	-	-	-	6,416	5,801	5,864	-	-
24 Sulawesi Tengah	2,371	33,823	5,235	61,081	-	-	673	3,238	42,032	20,391	79,804	-	-	1,760
25 Sulawesi Selatan	9,503	113,742	39,683	152,092	26,603	818	139	13,412	71,133	94,710	206,999	12,062	1,387	127
26 Sulawesi Tenggara	-	-	2,866	70,591	-	-	-	-	1,102	12,230	120,530	-	-	-
27 Gorontalo	-	-	41	470	-	-	-	-	-	126	3,475	-	-	-
Sulawesi	**11,874**	**147,565**	**52,647**	**286,638**	**44,565**	**818**	**812**	**16,650**	**114,267**	**133,873**	**416,609**	**17,926**	**1,387**	**1,887**
28 Maluku	622	-	565	1,147	-	-	-	1,191	-	3,516	6,592	-	-	-
29 Maluku Utara	-	-	572	5,999	-	-	-	-		3,852	27,447	-		
30 Irian Jaya	521	99,860	1,501	13,789	-	-	-	3,418	56,392	10,489	27,932	-	-	-
Maluku + Irian Jaya	**1,143**	**99,860**	**2,638**	**20,935**	**0**	**0**	**0**	**4,609**	**56,392**	**17,857**	**61,971**	**0**	**0**	**0**
Total	**1,607,109**	**7,968,891**	**566,634**	**428,263**	**1,727,569**	**227,512**	**172,896**	**3,345,225**	**3,974,337**	**1,269,024**	**765,402**	**344,750**	**259,420**	**158,171**

Source : Agricultural Statistics 2003, Ministry of Agriculture
Note : * Preliminary Figure

Table 3.1.14 Number of Livestock by Province (1/5)

No.	Province	Beef Cattle (heads)							DairyCattle (heads)						
		1997	1998**	1999	2000	2001	2002	2003*	1997	1998**	1999	2000	2001	2002	2003*
1	DI. Aceh	680,027	692,538	697,304	668,489	699,956	701,356	702,338	155	158	67	55	61	67	74
2	Sumatera Utara	268,364	246,279	247,485	247,781	248,078	248,375	248,673	8,811	6,386	6,411	6,420	6,445	6,470	6,495
3	Sumatera Barat	415,252	420,688	425,338	429,336	501,356	546,864	596,549	829	640	580	526	502	488	474
4	Riau	135,253	141,907	140,897	144,678	107,646	109,249	106,408	0	0	0	0	0	0	0
5	Jambi	151,108	156,350	150,253	142,054	138,398	142,550	144,432	23	26	23	23	pm	26	26
6	Sumatera Selatan	515,539	522,090	407,812	420,617	415,743	419,000	440,347	134	133	197	202	302	275	283
7	Bengkulu	94,522	81,223	78,811	79,180	76,686	76,839	80,277	0	0	0	0	0	62	157
8	Lampung	451,913	443,044	409,762	375,115	373,534	380,697	382,889	78	83	96	106	110	105	106
9	Bangka Belitung	0	0	0	0	4,157	4,663	4,178	0	0	0	0	0	0	0
	Sumatra	**2,711,978**	**2,704,119**	**2,557,662**	**2,507,250**	**2,565,554**	**2,629,593**	**2,706,091**	**10,030**	**7,426**	**7,374**	**7,332**	**7,420**	**7,493**	**7,615**
10	DKI Jakarta	0	0	0	0	0	0	0	4,293	4,355	4,472	3,857	4,054	3,833	3,757
11	Jawa Barat	183,286	151,543	157,725	174,697	189,518	189,518	208,918	95,224	79,237	80,749	84,788	84,934	91,219	94,689
12	Jawa Tengah	1,260,278	1,247,995	1,236,580	1,317,341	1,331,103	1,337,758	1,374,343	102,825	102,113	105,181	114,834	114,915	119,026	123,692
13	DI. Yogyakarta	197,428	201,142	202,138	206,714	211,889	217,186	221,564	3,453	3,836	4,105	4,069	4,454	4,917	5,163
14	Jawa Timur	3,382,670	3,223,055	3,380,547	3,312,015	3,312,015	3,312,015	3,312,015	118,121	124,618	129,775	139,075	130,922	131,262	132,761
15	Banten	0	0	0	0	9,236	9,467	9,703	0	0	0	0	32	32	33
	Jawa	**5,023,662**	**4,823,735**	**4,976,990**	**5,010,767**	**5,053,761**	**5,065,944**	**5,126,543**	**323,916**	**314,159**	**324,282**	**346,623**	**339,311**	**350,289**	**360,095**
16	Bali	538,753	524,615	526,013	529,074	521,264	523,870	526,449	71	55	62	67	67	54	71
17	NTB	471,847	429,847	374,940	376,526	395,751	403,666	415,077	0	0	0	0	0	0	0
18	NTT	717,111	715,704	726,439	485,329	495,051	502,589	510,368	0	0	0	0	0	0	0
	Bali, Nusatenggara	**1,727,711**	**1,670,166**	**1,627,392**	**1,390,929**	**1,412,066**	**1,430,125**	**1,451,894**	**71**	**55**	**62**	**67**	**67**	**54**	**71**
19	Kalimantan Barat	163,295	166,838	151,968	151,598	144,538	157,040	149,700	62	65	62	50	69	35	75
20	Kalimantan Tengah	48,282	49,790	45,346	45,326	39,544	40,055	42,095	0	0	0	0	0	0	0
21	Kalimantan Selatan	166,597	143,922	140,553	143,416	146,763	153,147	159,809	98	60	62	59	64	74	74
22	Kalimantan Timur	84,733	40,457	45,907	50,773	53,511	56,187	57,782	65	65	65	25	23	24	24
	Kalimantan	**462,907**	**401,007**	**383,774**	**391,113**	**384,356**	**406,429**	**409,386**	**225**	**190**	**189**	**134**	**156**	**133**	**173**
23	Sulawesi Utara	294,666	294,666	271,887	276,524	132,514	134,396	134,624	22	24	22	0	-	0	0
24	Sulawesi Tengah	262,027	273,818	234,489	234,444	231,489	231,997	200,115	0	0	0	0	0	0	0
25	Sulawesi Selatan	840,642	823,245	749,392	718,139	722,452	751,277	725,640	0	32	30	25	44	306	405
26	Sulawesi Tenggara	289,143	292,846	295,717	300,451	300,451	300,451	300,451	0	0	0	0	0	0	0
27	Gorontalo	0	0	0	0	159,334	163,747	168,267	0	0	0	0	0	0	0
	Sulawesi	**1,686,478**	**1,684,575**	**1,551,485**	**1,529,558**	**1,546,240**	**1,581,868**	**1,529,097**	**22**	**56**	**52**	**25**	**44**	**306**	**405**
28	Maluku	109,835	114,228	97,938	97,938	59,387	60,636	61,912	0	0	0	0	0	0	0
29	Maluku Utara	0	0	0	0	44,091	46,449	39,676	0	0	0	0	0	0	0
30	Irian Jaya	69,800	74,942	80,462	80,462	72,246	76,581	71,089	63	70	72	72	0	111	111
	Maluku, Irian	**179,635**	**189,170**	**178,400**	**178,400**	**175,724**	**183,666**	**172,677**	**63**	**70**	**72**	**72**	**0**	**111**	**111**
	Total	**11,792,371**	**11,472,772**	**11,275,703**	**11,008,017**	**11,137,701**	**11,297,625**	**11,395,688**	**334,327**	**321,956**	**332,031**	**354,253**	**346,998**	**358,386**	**368,470**

Source : Statistical Book on Livestock 2003
Note: *: Preliminary figures
** : Source from Statistical Book on Livestock 2002

Table 3.1.14 Number of Livestock by Province (2/5)

		Goat (head)							Pig (head)						
		1997	1998**	1999	2000	2001	2002	2003*	1997	1998**	1999	2000	2001	2002	2003*
1	DI. Aceh	644,654	663,131	622,501	626,983	634,883	636,044	644,058	322	443	461	154	113	143	105
2	Sumatera Utara	785,229	691,228	694,338	698,851	703,393	707,965	712,566	976,277	765,652	767,566	787,223	807,375	828,043	849,240
3	Sumatera Barat	292,697	299,475	234,537	236,929	280,235	331,046	391,241	46,955	47,078	47,147	47,449	47,633	47,731	47,833
4	Riau	319,000	395,305	215,702	222,912	210,091	240,276	270,536	525,088	757,332	514,566	351,909	346,119	338,544	355,999
5	Jambi	126,422	124,731	120,340	122,386	122,664	126,796	130,896	16,192	14,479	13,905	13,446	12,440	11,309	11,300
6	Sumatera Selatan	574,001	597,838	420,639	432,080	435,653	435,872	454,309	72,564	75,802	48,894	50,155	33,712	32,857	34,175
7	Bengkulu	156,749	101,417	102,370	103,356	104,671	105,910	106,360	1,103	1,142	1,179	1,202	1,224	1,285	1,323
8	Lampung	601,506	725,895	734,026	628,514	726,350	761,490	764,536	72,280	82,041	84,868	62,124	94,188	80,723	81,127
9	Bangka Belitung	0	0	0	0	2,588	2,898	2,935	0	0	0	0	32,482	73,491	53,928
	Sumatra	**3,500,258**	**3,599,020**	**3,144,453**	**3,072,011**	**3,220,528**	**3,348,297**	**3,477,437**	**1,710,781**	**1,743,969**	**1,478,586**	**1,313,662**	**1,375,286**	**1,414,126**	**1,435,030**
10	DKI Jakarta	6,767	8,349	6,415	9,338	9,894	4,964	4,985	0	0	0	0	0	0	0
11	Jawa Barat	1,935,346	1,698,631	1,666,500	1,705,605	922,633	878,043	1,255,578	25,550	18,119	11,136	14,539	12,337	9,702	12,883
12	Jawa Tengah	3,053,791	2,899,335	2,812,151	2,968,072	2,974,914	2,984,434	3,018,456	100,532	94,823	80,590	108,302	99,094	104,037	107,980
13	DI. Yogyakarta	277,583	263,265	263,397	266,894	261,958	272,170	274,892	6,741	5,972	6,908	8,317	9,576	9,924	10,023
14	Jawa Timur	2,618,502	2,232,229	2,264,992	2,284,244	2,297,036	2,315,318	2,343,113	54,610	27,876	27,426	39,698	38,633	38,168	38,633
15	Banten	0	0	0	0	563,405	522,380	601,785	0	0	0	0	5,761	10,138	10,138
	Jawa	**7,891,989**	**7,101,809**	**7,013,455**	**7,234,153**	**7,029,840**	**6,977,309**	**7,498,809**	**187,433**	**146,790**	**126,060**	**170,856**	**165,401**	**171,969**	**179,657**
16	Bali	122,225	110,350	103,037	96,003	69,873	73,555	70,222	1,131,283	967,402	968,011	939,046	941,230	855,805	950,642
17	NTB	343,064	273,184	234,063	240,877	239,225	254,625	267,356	26,153	21,447	21,507	30,577	39,900	25,390	25,644
18	NTT	629,009	636,466	654,922	361,714	398,560	420,836	444,357	2,229,134	2,233,369	2,287,302	725,457	953,457	1,170,473	1,436,885
	Bali, Nusatenggara	**1,094,298**	**1,020,000**	**992,022**	**698,594**	**707,658**	**749,016**	**781,935**	**3,386,570**	**3,222,218**	**3,276,820**	**1,695,080**	**1,934,587**	**2,051,668**	**2,413,171**
19	Kalimantan Barat	110,072	111,082	123,086	117,797	98,567	99,182	102,540	331,786	293,286	357,783	323,853	347,401	419,326	375,740
20	Kalimantan Tengah	22,676	22,676	27,008	29,880	24,079	22,229	29,331	145,838	146,338	156,840	163,442	167,747	179,676	174,665
21	Kalimantan Selatan	71,882	64,640	66,756	69,827	73,649	77,757	79,017	11,075	6,466	6,752	6,657	7,247	7,051	8,060
22	Kalimantan Timur	73,544	60,754	59,913	57,501	70,094	72,505	73,955	116,170	90,703	87,742	122,166	137,113	145,647	148,560
	Kalimantan	**278,174**	**259,152**	**276,763**	**275,005**	**266,389**	**271,673**	**284,843**	**604,869**	**536,793**	**609,117**	**616,118**	**659,508**	**751,700**	**707,025**
23	Sulawesi Utara	104,604	106,696	123,126	125,897	46,682	49,341	49,499	505,051	303,301	240,202	298,691	294,063	294,651	306,437
24	Sulawesi Tengah	202,027	210,714	183,314	181,139	162,965	162,628	164,254	226,670	247,954	108,023	108,646	103,545	177,085	178,856
25	Sulawesi Selatan	468,967	489,433	461,115	478,594	524,072	524,972	536,234	575,061	598,102	507,474	461,277	311,153	505,815	531,328
26	Sulawesi Tenggara	117,587	212,967	122,323	115,374	89,255	70,977	73,110	18,523	22,056	23,160	20,126	19,477	19,193	20,150
27	Gorontalo	0	0	0	0	83,931	92,811	101,917	0	0	0	0	8,432	7,622	8,311
	Sulawesi	**893,185**	**1,019,810**	**889,878**	**901,004**	**906,905**	**900,729**	**925,014**	**1,325,305**	**1,171,413**	**878,859**	**888,740**	**736,670**	**1,004,366**	**1,045,082**
28	Maluku	261,385	292,751	331,800	331,800	140,564	143,383	146,267	109,335	119,175	107,258	107,258	82,385	85,685	89,124
29	Maluku Utara	0	0	0	0	151,648	113,701	116,421	0	0	0	0	5,200	1,415	1,486
30	Irian Jaya	46,290	49,532	53,002	53,002	40,357	44,978	45,488	532,680	548,660	565,120	565,120	410,288	445,878	474,173
	Maluku, Irian	**307,675**	**342,283**	**384,802**	**384,802**	**332,569**	**302,062**	**308,176**	**642,015**	**667,835**	**672,378**	**672,378**	**497,873**	**532,978**	**564,783**
	Total	**13,965,579**	**13,342,074**	**12,701,373**	**12,565,569**	**12,463,889**	**12,549,086**	**13,276,214**	**7,856,973**	**7,489,018**	**7,041,820**	**5,356,834**	**5,369,325**	**5,926,807**	**6,344,748**

Source：Statistical Book on Livestock 2003
Note: *: Preliminary figures
** : Source from Statistical Book on Livestock 2002

Table 3.1.14 Number of Livestock by Province (3/5)

	Native Chicken (heads)							Layer (heads)						
	1997	1998**	1999	2000	2001	2002	2003*	1997	1998**	1999	2000	2001	2002	2003*
1 DI. Aceh	15,157,846	19,278,293	15,914,184	16,192,682	17,511,361	17,721,490	19,156,931	213,375	228,727	260,640	245,592	257,356	47,350	49,618
2 Sumatera Utara	21,160,000	19,574,500	19,736,970	20,532,960	21,361,054	22,222,545	23,118,780	6,266,676	3,763,760	10,746,077	15,723,936	12,883,729	14,128,403	14,436,402
3 Sumatera Barat	7,253,675	7,369,734	7,435,908	7,510,267	7,604,626	7,784,059	8,082,999	1,322,620	1,095,512	1,295,507	3,210,126	3,691,645	4,590,555	5,482,572
4 Riau	4,069,102	4,231,866	5,727,608	7,994,993	5,317,917	6,475,273	6,626,082	792,184	856,351	596,323	683,667	651,096	636,813	655,121
5 Jambi	3,773,435	4,051,183	3,994,049	4,195,949	3,124,160	3,439,967	3,600,000	272,858	254,078	205,163	268,497	286,133	445,253	448,000
6 Sumatera Selatan	15,129,000	15,612,000	14,965,000	16,500,000	16,533,000	13,375,000	14,420,000	1,167,000	2,209,000	1,383,000	3,000,000	4,600,000	5,595,000	5,983,000
7 Bengkulu	4,037,642	2,790,011	2,801,171	2,919,951	3,166,905	3,325,250	3,644,474	50,750	30,174	17,963	29,100	38,041	57,061	102,191
8 Lampung	14,209,000	14,810,531	14,989,740	13,300,148	15,163,783	15,178,000	15,193,178	871,179	1,467,354	1,553,194	3,116,304	1,780,313	2,051,600	2,061,858
9 Bangka Belitung	0	0	0	0	2,136,600	2,196,127	2,352,052					216,835	353,441	424,192
Sumatra	**84,789,700**	**87,718,118**	**85,564,630**	**89,146,950**	**91,919,406**	**91,717,711**	**96,194,496**	**10,956,642**	**9,904,956**	**16,057,867**	**26,277,222**	**24,405,148**	**27,905,476**	**29,642,954**
10 DKI Jakarta	110,512	127,427	121,736	150,212	175,821	91,666	94,508	12,232	0	0	500	0	0	0
11 Jawa Barat	32,767,621	28,638,481	33,152,942	34,091,782	27,703,049	30,273,580	31,972,465	11,939,916	7,510,987	8,682,421	12,432,950	7,403,492	8,588,803	10,438,942
12 Jawa Tengah	34,330,205	31,458,193	31,584,135	31,970,524	32,880,202	34,174,515	34,885,345	10,290,716	5,646,294	5,641,263	6,730,818	7,112,163	7,368,333	7,925,379
13 DI. Yogyakarta	5,054,116	4,879,562	5,033,246	5,105,777	5,101,541	5,113,816	5,164,954	2,142,185	847,258	1,029,243	1,142,601	1,360,186	1,418,533	1,479,388
14 Jawa Timur	37,097,943	36,411,485	36,920,771	37,176,008	37,437,568	37,766,677	38,344,491	24,055,506	5,991,993	6,818,930	14,358,602	14,617,057	14,702,644	15,208,534
15 Banten	0	0	0	0	7,706,941	8,304,999	8,949,467					6,049,430	7,198,822	8,566,598
Jawa	**109,360,397**	**101,515,148**	**106,812,830**	**108,494,303**	**111,005,122**	**115,725,253**	**119,411,230**	**48,440,555**	**19,996,532**	**22,171,857**	**34,665,471**	**36,542,328**	**39,277,135**	**43,618,841**
16 Bali	6,544,878	5,672,902	5,111,395	5,055,649	4,798,630	4,201,350	4,846,616	2,162,685	924,605	1,065,474	1,567,321	1,572,668	2,001,287	1,583,695
17 NTB	6,086,941	6,036,800	3,760,284	3,325,722	3,818,547	3,973,925	4,013,664	438,693	306,768	41,479	53,605	57,952	90,128	91,029
18 NTT	8,000,441	8,743,074	9,153,997	9,153,997	9,356,240	9,636,927	9,926,035	119,611	35,883	36,601	50,000	185,945	79,297	188,965
Bali, Nusatenggara	**20,632,260**	**20,452,776**	**18,025,676**	**17,535,368**	**17,973,417**	**17,812,202**	**18,786,315**	**2,720,989**	**1,267,256**	**1,143,554**	**1,670,926**	**1,816,565**	**2,170,712**	**1,863,689**
19 Kalimantan Barat	4,043,892	3,654,740	3,948,971	3,841,321	4,171,870	3,798,480	4,512,290	1,743,750	1,678,300	1,689,000	1,710,550	1,746,300	2,015,910	2,036,880
20 Kalimantan Tengah	2,246,369	2,384,399	2,747,369	3,150,775	3,154,874	3,431,072	3,741,920	27,248	18,787	16,565	19,162	14,402	16,834	18,971
21 Kalimantan Selatan	5,356,484	3,705,167	3,980,461	4,648,037	5,528,946	6,435,933	7,138,851	661,709	593,137	554,032	549,527	647,673	1,255,017	1,317,768
22 Kalimantan Timur	4,309,200	3,160,800	2,988,400	3,048,600	3,108,900	3,315,800	3,382,116	739,084	379,400	545,100	324,910	470,300	901,900	919,938
Kalimantan	**15,955,945**	**12,905,106**	**13,665,201**	**14,688,733**	**15,964,590**	**16,981,285**	**18,775,177**	**3,171,791**	**2,669,624**	**2,804,697**	**2,604,149**	**2,878,675**	**4,189,661**	**4,293,557**
23 Sulawesi Utara	2,175,963	2,282,150	2,631,518	2,709,843	2,072,935	2,060,290	2,142,702	837,947	860,069	631,592	631,592	548,771	500,698	525,733
24 Sulawesi Tengah	2,553,679	2,604,752	1,150,483	1,219,590	1,441,303	1,369,134	1,382,825	142,997	142,997	204,946	395,507	375,290	462,877	467,506
25 Sulawesi Selatan	14,961,920	14,707,768	14,684,327	15,617,718	17,434,428	19,082,148	19,200,128	3,591,554	3,436,432	2,161,831	2,787,881	3,363,644	3,196,835	4,263,202
26 Sulawesi Tenggara	6,327,525	6,611,864	6,439,833	6,165,289	6,330,234	6,331,450	6,489,740	207,709	34,280	34,449	13,205	34,449	20,617	21,130
27 Gorontalo	0	0	0	0	771,644	803,319	836,296					137,933	156,954	178,594
Sulawesi	**26,019,087**	**26,206,534**	**24,906,161**	**25,712,440**	**28,050,544**	**29,646,341**	**30,051,691**	**4,780,207**	**4,473,778**	**3,032,818**	**3,828,185**	**4,460,087**	**4,337,981**	**5,456,165**
28 Maluku	2,105,649	2,253,044	2,140,392	2,140,392	997,197	1,037,677	1,080,417	124,863	124,863	0	0	44,087	47,749	51,719
29 Maluku Utara	0	0	0	0	701,526	752,568	952,756					2,000	0	0
30 Irian Jaya	1,395,400	1,465,162	1,538,411	1,538,411	1,427,256	1,618,836	2,091,536	387,817	387,817	320,053	320,053	105,602	110,151	120,836
Maluku, Irian	**3,501,049**	**3,718,206**	**3,678,803**	**3,678,803**	**3,125,979**	**3,409,081**	**4,124,709**	**512,680**	**512,680**	**320,053**	**320,053**	**151,689**	**157,900**	**172,555**
Total	**260,258,438**	**252,515,888**	**252,653,301**	**259,256,597**	**268,039,058**	**275,291,873**	**287,343,618**	**70,582,864**	**38,824,826**	**45,530,846**	**69,366,006**	**70,254,492**	**78,038,865**	**85,047,761**

Source : Statistical Book on Livestock 2003

Note: *: Preliminary figures

** : Source from Statistical Book on Livestock 2002

Table 3.1.14 Number of Livestock by Province (4/5)

		Broiler (heads)							Duck (heads)						
		1997	1998**	1999	2000	2001	2002	2003*	1997	1998**	1999	2000	2001	2002	2003*
1	DI. Aceh	1,108,100	887,624	951,548	965,155	978,957	992,956	1,007,155	3,399,178	3,418,914	3,292,047	3,314,103	3,336,510	3,358,861	3,381,365
2	Sumatera Utara	72,510,000	21,347,000	20,154,215	26,893,165	38,045,268	61,948,000	61,948,000	2,265,317	2,192,490	2,210,690	2,223,951	2,237,295	2,250,717	2,264,221
3	Sumatera Barat	4,555,663	9,983,704	10,196,748	10,400,682	10,653,726	10,882,230	11,115,635	1,658,999	1,676,750	1,683,673	1,711,790	1,744,732	1,795,425	1,850,415
4	Riau	13,726,918	13,829,870	6,746,549	8,427,829	8,520,831	24,107,034	24,143,195	270,414	274,470	302,831	401,744	328,920	359,975	420,609
5	Jambi	2,182,855	1,799,321	2,817,880	4,793,997	5,574,539	5,424,441	6,000,000	552,130	632,294	625,627	628,169	439,428	496,798	500,000
6	Sumatera Selatan	13,852,000	4,866,000	13,851,000	15,500,000	16,500,000	17,000,000	17,906,000	1,705,000	1,252,000	2,131,000	2,198,000	2,050,000	2,063,000	2,156,000
7	Bengkulu	2,165,532	2,273,809	2,387,499	2,453,080	2,715,100	22,996,897	18,627,525	654,760	229,166	210,258	225,650	232,913	256,786	277,828
8	Lampung	7,306,488	2,301,647	15,655,272	23,929,600	22,521,970	23,640,000	23,758,200	387,844	418,331	419,532	559,827	426,205	515,927	518,507
9	Bangka Belitung	0	0	0	0	354,862	401,067	406,802	0	0	0	0	170,400	175,592	176,768
	Sumatra	**117,407,556**	**57,288,975**	**72,760,711**	**93,363,508**	**105,865,253**	**167,392,625**	**164,912,512**	**10,893,642**	**10,094,415**	**10,875,658**	**11,263,234**	**10,966,403**	**11,273,081**	**11,545,713**
10	DKI Jakarta	1,067,500	610,400	854,000	889,000	1,046,500	1,455,000	1,360,000	49,996	61,551	124,064	140,144	129,189	57,203	65,680
11	Jawa Barat	145,950,581	88,483,024	88,765,654	196,422,402	238,050,365	269,778,372	308,021,118	3,603,423	2,905,893	3,921,126	4,204,705	4,055,539	4,293,637	4,730,741
12	Jawa Tengah	142,864,962	68,585,024	71,244,629	71,554,382	53,879,257	97,485,267	97,582,752	3,781,155	3,781,155	3,292,498	3,661,805	3,772,070	4,023,358	4,107,848
13	DI. Yogyakarta	11,107,061	8,679,083	10,137,478	12,431,023	15,873,340	30,582,672	30,582,672	231,770	202,130	203,627	227,476	220,272	211,590	213,706
14	Jawa Timur	156,304,232	89,300,169	42,904,080	88,077,360	89,706,792	153,817,800	157,610,195	2,986,181	2,252,515	2,281,549	2,311,665	2,316,205	14,702,644	15,008,534
15	Banten	0	0	0	0	46,437,708	55,725,252	55,725,252	0	0	0	0	1,159,513	1,379,820	1,648,886
	Jawa	**457,294,336**	**255,657,700**	**213,905,841**	**369,374,167**	**444,993,962**	**608,844,363**	**650,881,989**	**10,652,525**	**9,203,244**	**9,822,864**	**10,545,795**	**11,652,788**	**24,668,252**	**25,775,395**
16	Bali	16,001,811	1,159,607	1,574,084	18,646,404	17,951,970	16,137,695	25,132,751	713,343	534,171	539,024	616,460	532,743	924,749	554,053
17	NTB	0	0	2,038,477	2,705,129	2,995,041	3,981,564	4,021,380	594,132	382,579	415,806	490,958	494,797	566,204	594,514
18	NTT	714,244	338,408	345,258	354,313	475,000	452,500	504,750	161,176	183,050	191,653	191,653	200,277	210,291	220,805
	Bali, Nusatenggara	**16,716,055**	**1,498,015**	**3,957,819**	**21,705,846**	**21,422,011**	**20,571,759**	**29,658,881**	**1,468,651**	**1,099,800**	**1,146,483**	**1,299,071**	**1,227,817**	**1,701,244**	**1,369,372**
19	Kalimantan Barat	14,335,390	8,919,070	10,234,795	15,787,359	15,080,128	15,324,493	16,125,800	326,076	264,300	278,176	283,240	287,776	301,911	296,400
20	Kalimantan Tengah	1,332,185	1,234,415	1,376,500	1,616,795	1,378,805	1,659,954	1,671,511	147,421	153,831	147,223	150,350	107,749	114,122	125,356
21	Kalimantan Selatan	6,020,064	2,621,151	2,411,338	6,148,602	7,559,551	8,583,756	10,726,681	3,116,289	1,497,340	1,955,751	2,316,779	2,496,944	2,611,321	3,520,488
22	Kalimantan Timur	8,242,800	4,333,800	12,390,800	14,306,200	17,832,200	20,624,500	21,036,990	324,200	227,700	228,600	214,500	264,700	376,800	384,336
	Kalimantan	**29,930,439**	**17,108,436**	**26,413,433**	**37,858,956**	**41,850,684**	**46,192,703**	**49,560,982**	**3,913,986**	**2,143,171**	**2,609,750**	**2,964,869**	**3,157,169**	**3,404,154**	**4,326,580**
23	Sulawesi Utara	2,832,597	2,061,130	3,443,941	4,121,368	4,555,152	4,096,442	4,301,270	417,649	417,649	99,138	106,264	59,271	57,386	58,247
24	Sulawesi Tengah	806,432	5,870,823	745,400	974,015	988,450	1,329,577	1,342,873	145,310	148,216	102,019	151,285	204,742	204,601	206,647
25	Sulawesi Selatan	13,701,758	10,756,746	1,570,930	1,890,100	1,727,863	15,327,835	15,630,735	2,322,324	2,308,503	2,379,148	2,243,335	4,238,415	4,113,486	4,175,063
26	Sulawesi Tenggara	0	972,230	115,000	152,420	131,867	682,100	699,200	262,351	273,672	278,443	223,020	220,229	225,818	231,460
27	Gorontalo	0	0	0	0	35,798	53,775	80,783	0	0	0	0	69,361	69,361	93,768
	Sulawesi	**17,340,787**	**19,660,929**	**5,875,271**	**7,137,903**	**7,439,130**	**21,489,729**	**22,054,861**	**3,147,634**	**3,148,040**	**2,858,748**	**2,723,904**	**4,792,018**	**4,670,652**	**4,765,185**
28	Maluku	961,884	942,646	0	0	36,065	36,130	36,195	109,360	121,389	122,000	122,000	65,336	66,323	67,332
29	Maluku Utara	0	0	0	0	30,000	67,800	75,600	0	0	0	0	64,830	53,380	58,717
30	Irian Jaya	1,252,200	1,339,869	1,433,677	1,433,677	233,323	479,676	526,209	105,620	110,903	116,449	116,449	141,983	163,796	211,624
	Maluku, Irian	**2,214,084**	**2,282,515**	**1,433,677**	**1,433,677**	**299,388**	**583,606**	**638,004**	**214,980**	**232,292**	**238,449**	**238,449**	**272,149**	**283,499**	**337,673**
	Total	**640,903,257**	**353,496,570**	**324,346,752**	**530,874,057**	**621,870,428**	**865,074,785**	**917,707,229**	**30,291,418**	**25,920,962**	**27,551,952**	**29,035,322**	**32,068,344**	**46,000,882**	**48,119,918**

Source : Statistical Book on Livestock 2003

Note: *: Preliminary figures

** : Source from Statistical Book on Livestock 2002

Table 3.1.14 Number of Livestock by Province (5/5)

		Buffalo (heads)							Sheep (heads)						
		1997	1998**	1999	2000	2001	2002	2003*	1997	1998**	1999	2000	2001	2002	2003*
1	DI. Aceh	397,688	420,748	401,286	391,334	393,369	395,414	397,470	140,738	139,595	122,026	119,963	121,067	121,624	122,743
2	Sumatera Utara	265,053	264,152	264,574	260,049	259,138	260,044	261,734	154,027	159,491	170,942	184,583	199,312	215,217	232,391
3	Sumatera Barat	220,406	224,338	226,646	230,818	258,226	288,958	323,450	1,814	1,867	1,902	1,977	2,101	2,233	2,375
4	Riau	55,472	56,309	43,518	44,430	42,829	46,233	46,246	0	0	0	0	0	0	0
5	Jambi	86,156	85,165	77,322	70,102	69,003	69,713	70,815	52,568	51,765	48,220	45,701	45,700	45,532	46,932
6	Sumatera Selatan	149,441	151,982	85,706	85,706	84,215	83,147	86,157	100,432	107,112	54,867	56,014	54,825	54,547	56,320
7	Bengkulu	87,086	49,308	48,721	46,469	43,823	43,910	40,321	20,227	8,062	7,183	6,261	2,050	1,947	1,850
8	Lampung	35,622	52,852	49,966	41,302	50,012	50,095	50,145	35,369	44,288	45,231	57,851	48,273	59,063	59,358
9	Bangka Belitung	0	0	0	0	1,327	1,400	1,407	0	0	0	0	4	0	0
	Sumatra	**1,296,924**	**1,304,854**	**1,197,739**	**1,170,210**	**1,201,942**	**1,238,914**	**1,277,745**	**505,175**	**512,180**	**450,371**	**472,350**	**473,332**	**500,163**	**521,969**
10	DKI Jakarta	684	971	639	700	607	160	137	2,160	2,880	3,407	4,972	4,069	1,463	1,614
11	Jawa Barat	434,721	356,005	317,343	326,040	153,372	148,778	168,974	3,577,467	3,263,791	3,388,340	3,475,019	3,087,038	3,162,234	3,438,352
12	Jawa Tengah	220,341	190,053	182,425	182,210	170,012	148,665	148,814	1,787,974	1,730,607	1,781,114	1,982,988	1,873,659	1,972,322	2,033,266
13	DI. Yogyakarta	8,656	7,239	7,009	6,741	5,735	5,636	5,692	77,873	73,385	74,479	73,600	71,389	73,421	74,155
14	Jawa Timur	153,900	149,384	144,208	122,431	116,314	113,383	116,314	1,496,276	1,322,328	1,333,518	1,342,186	1,347,087	1,354,297	1,374,284
15	Banten	0	0	0	0	109,604	163,564	133,170	0	0	0	0	450,476	476,762	476,056
	Jawa	**818,302**	**703,652**	**651,624**	**638,122**	**555,644**	**580,186**	**573,101**	**6,941,750**	**6,392,991**	**6,580,858**	**6,878,765**	**6,833,718**	**7,040,499**	**7,397,727**
16	Bali	11,142	9,164	7,680	7,765	7,764	5,634	7,850	115	61	43	122	157	439	159
17	NTB	226,487	206,351	163,726	160,634	157,834	157,199	158,771	42,958	28,949	16,543	16,804	17,302	17,503	18,378
18	NTT	167,123	162,291	164,726	124,049	126,575	132,497	138,696	145,184	146,747	151,296	32,079	52,074	55,631	59,430
	Bali, Nusatenggara	**404,752**	**377,806**	**336,132**	**292,448**	**292,173**	**295,330**	**305,317**	**188,257**	**175,757**	**167,882**	**49,005**	**69,533**	**73,573**	**77,967**
19	Kalimantan Barat	6,398	6,537	7,692	6,194	5,882	5,849	6,029	31	31	27	57	113	107	108,600
20	Kalimantan Tengah	9,893	9,902	10,620	11,113	9,472	7,359	8,285	2,793	2,833	33,183	4,093	3,350	3,887	4,198
21	Kalimantan Selatan	47,636	34,126	34,271	35,288	35,513	37,463	36,313	4,355	3,439	3,580	3,748	3,602	3,642	3,923
22	Kalimantan Timur	24,862	14,474	13,277	14,577	14,937	15,415	15,723	1,733	1,370	1,185	780	1,177	1,225	1,250
	Kalimantan	**88,789**	**65,039**	**65,860**	**67,172**	**65,804**	**66,086**	**66,350**	**8,912**	**7,673**	**37,975**	**8,678**	**8,242**	**8,861**	**117,971**
23	Sulawesi Utara	97	172	99	-	-	0	0	0	0	0	0	0	0	0
24	Sulawesi Tengah	8,293	7,058	6,766	6,238	6,170	3,734	3,771	8,421	8,926	6,703	6,210	6,091	7,335	7,408
25	Sulawesi Selatan	342,263	252,726	211,375	196,327	178,119	186,564	196,050	1,845	1,927	1,867	1,995	1,334	1,372	1,411
26	Sulawesi Tenggara	11,471	11,488	11,044	9,660	9,721	8,115	8,520	351	356	366	321	259	228	235
27	Gorontalo	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Sulawesi	**362,124**	**271,444**	**229,284**	**212,225**	**194,010**	**198,413**	**208,341**	**10,617**	**11,209**	**8,936**	**8,526**	**7,684**	**8,935**	**9,054**
28	Maluku	23,277	24,208	23,500	23,500	22,970	23,322	23,673	7,490	7,490	6,741	6,741	7,433	7,545	7,659
29	Maluku Utara	0	0	0	0	0	120	126	0	0	0	0	0	0	0
30	Irian Jaya	1,125	1,534	1,600	1,600	886	662	678	2,560	2,738	2,927	2,927	1,175	1,108	1,120
	Maluku, Irian	**24,402**	**25,742**	**25,100**	**25,100**	**23,856**	**24,104**	**24,477**	**10,050**	**10,228**	**9,668**	**9,668**	**8,608**	**8,653**	**8,779**
	Total	**2,995,293**	**2,748,537**	**2,505,739**	**2,405,277**	**2,333,429**	**2,403,033**	**2,455,331**	**7,664,761**	**7,110,038**	**7,255,690**	**7,426,992**	**7,401,117**	**7,640,684**	**8,133,467**

Source : Statistical Book on Livestock 2003

Note: *: Preliminary figures

** : Source from Statistical Book on Livestock 2002

Table 3.1.15 Livestock Production

(Unit: ton)

Year	Meat	Egg	Milk
1969	309,300	57,700	28,900
1970	314,000	58,600	29,300
1971	332,200	68,400	35,800
1972	366,200	67,500	37,700
1973	379,400	81,400	35,000
1974	403,100	98,100	56,900
1975	435,000	112,200	51,100
1976	448,900	115,600	58,000
1977	467,700	131,400	60,700
1978	444,600	151,000	62,300
1979	486,500	164,500	72,200
1980	570,800	262,600	78,400
1981	596,000	275,200	85,800
1982	628,600	297,000	117,600
1983	650,200	316,000	174,600
1984	742,200	355,300	179,000
1985	808,400	369,900	191,900
1986	879,000	437,200	220,200
1987	895,500	451,500	234,900
1988	937,000	443,100	264,900
1989	971,100	456,200	338,200
1990	1,027,700	484,000	345,600
1991	1,099,200	510,400	360,200
1992	1,239,200	572,300	367,200
1993	1,378,300	572,900	387,500
1994	1,492,900	668,600	426,700
1995	1,508,200	736,000	433,400
1996	1,632,200	779,800	441,200
1997	1,555,100	765,000	423,700
1998	1,228,500	529,800	375,400
1999	1,195,700	640,100	436,000
2000	1,445,200	783,300	495,600
2001	1,560,600	850,300	479,900
2002	1,769,800	945,700	493,400
2003*	1,908,600	1,060,300	577,500

Source: Statistical Book on Livestock 2003

Note : * = Preliminary figures for 2003

Table 3.1.16 Trade Balance of Livestock Products

Import

Species	Unit	1996	1997	1998	1999	2000	2001	2002
I. Livestock								
Cattle Breed	1,000 heads	3.8	4.4	1.9	0.2	0.5	4.6	6.5
Feeder Steers	1,000 heads	205.1	277.0	49.9	118.4	267.7	168.1	141.7
Pig Breed	1,000 heads	0.0	0.2	0.0	0.0	0.3	0.1	0.6
PS	1,000 heads	1,287.9	693.2	496.6	1,862.5	1,610.1	1,751.0	677.0
Poultry	1,000 heads	74.0	234.7	105.8	28.9	158.2	111.6	20.2
II. Meat								
Bovine	ton	15,772.8	23,315.3	8,813.8	10,552.9	26,962.3	16,516.6	11,473.8
Sheep/Goat	ton	702.0	675.4	412.2	434.7	591.8	691.7	482.6
Pork	ton	96.0	101.3	57.6	107.8	320.6	213.1	278.1
Poultry	ton	2,051.2	811.1	571.5	4,070.4	14,017.4	1,454.2	949.8
Bovine Liver	ton	11,416.5	8,942.2	6,228.9	7,746.0	30,403.1	24,626.2	31,400.5
III. Livestock Products								
Milk Products	ton	51,788.5	48,783.3	32,737.4	59,926.7	117,268.2	119,922.1	107,867.7
Butter	ton	32,315.8	29,795.3	17,944.3	28,478.7	41,391.6	43,572.4	44,369.3
Cheese	ton	6,119.4	4,691.3	3,809.9	4,274.8	6,062.2	6,419.9	7,514.2
Egg	1,000 pcs	161.4	162.7	80.5	531.8	533.0	2,433.2	522.8

Export

Species	Unit	1996	1997	1998	1999	2000	2001	2002
I. Livestock								
Pig	1,000 heads	161.9	184.9	260.0	486.6	801.3	1,458.1	509.1
PS/FS	1,000 heads	1,371.4	466.3	270.1	1,192.4	1,070.1	803.4	625.9
Poultry	1,000 heads	1,537.8	527.8	148.6	40.4	699.5	93.6	2.2
II. Meat								
Bovine	ton	4.2	5.0	1.2	17.1	26.1	175.1	77.8
Sheep/Goat	ton	0.0	0.0	68.5	12.5	34.6	86.3	39.1
Pork	ton	40.9	366.2	188.7	222.4	689.7	460.7	3,551.5
Poultry	ton	0.3	1.8	3,006.5	2,859.3	703.8	1,740.2	2,346.3
III. Livestock Products								
Milk	ton	4,978.3	1,730.6	2,385.1	2,352.7	31,482.4	29,743.7	30,191.9
Butter	ton	311.5	2,728.5	4,936.1	14,562.2	29,171.3	46,411.9	3,597.4
Cheese	ton	17.7	9.9	167.5	13.0	21.7	28.4	33.8
Egg	1,000 pcs	0.9	4.9	0.0	0.0	77.7	449.5	948.8

Source: Statistical Book on Livestock, 2003

Table 3.1.17 Annual Per Capita Consumption of Livestock Products

	Annual Consumption per Capita (kg)			Daily Protein Consumption per Capita (g)			
	Meat	Egg	Milk	Meat	Egg	Milk	Total
1969	2.74	0.23	1.46	1.20	0.10	0.10	1.40
1970	2.70	0.23	1.82	1.20	0.10	0.10	1.40
1971	2.80	0.29	1.70	1.10	0.10	0.40	1.60
1972	3.02	0.35	1.73	1.20	2.00	0.20	3.40
1973	3.06	0.35	2.64	1.42	0.13	0.14	1.69
1974	3.18	0.45	1.96	1.48	0.16	0.18	1.82
1975	3.34	0.50	1.95	1.27	0.15	0.19	1.61
1976	3.37	0.52	2.82	1.29	0.16	0.27	1.72
1977	3.42	0.80	3.06	1.25	0.26	0.79	2.30
1978	3.41	0.88	3.53	1.25	0.27	0.41	1.93
1979	3.46	0.94	3.72	1.21	0.37	0.36	1.94
1980	3.92	1.44	4.36	1.40	0.43	0.42	2.25
1981	4.00	1.50	3.08	1.43	0.45	0.38	2.26
1982	4.12	1.58	4.17	1.41	0.51	0.37	2.29
1983	4.32	1.66	3.88	1.44	0.53	0.29	2.26
1984	4.64	1.84	3.90	1.55	0.58	0.34	2.47
1985	4.95	1.88	3.31	1.63	0.64	0.28	2.55
1986	5.37	2.13	3.43	1.70	0.67	0.30	2.67
1987	5.27	2.20	3.38	1.74	0.74	0.34	2.82
1988	5.40	2.10	4.20	1.76	0.70	0.37	2.83
1989	5.69	2.12	3.72	1.80	0.72	0.33	2.85
1990	5.70	2.31	3.44	1.86	0.74	0.30	2.90
1991	5.99	2.40	4.46	1.95	0.77	0.38	3.10
1992	6.78	2.73	4.39	2.15	0.86	0.38	3.39
1993	7.40	2.69	4.23	2.40	0.86	0.37	3.63
1994	7.83	3.16	4.75	2.54	1.00	0.42	3.96
1995	7.90	3.33	6.99	2.52	1.06	0.61	4.19
1996	8.41	3.49	5.72	2.70	1.11	0.50	4.31
1997	7.95	3.46	5.25	2.57	1.10	0.46	4.13
1998	4.24	2.29	4.13	2.00	0.73	0.36	3.09
1999	4.09	2.74	5.09	1.93	0.87	0.45	3.25
2000	5.15	3.48	6.50	2.43	1.10	0.57	4.10
2001	5.28	3.42	5.79	2.49	1.08	0.51	4.08
2002	5.75	4.04	7.05	2.71	1.28	0.62	4.61
2003*	6.08	4.47	7.28	2.87	1.42	0.64	4.93

Note: * : -Preliminary figures for 2003
Source: Statistical Book on Livestock 2003

Table 3.1.18 Area of Wet Land by Type of Irrigation (1/4, 1999)

Province	Technical Irrigation		Semi Technical Irrigation		Non Technical Irrigation		Irrigation Total		Rain Fed		Valley		Others		Grand Total	
Sumatra																
1 Naggroe Aceh Darussalam	45,544	2.0%	57,368	5.4%	99,402	5.8%	202,314	4.0%	89,516	4.3%	1,079	0.2%	68	0.0%	292,977	3.6%
2 North Sumatra	75,210	3.4%	93,771	8.8%	147,797	8.6%	316,778	6.3%	187,932	9.1%	26,592	4.3%	32,818	8.3%	564,120	7.0%
3 West Sumatra	26,157	1.2%	60,000	5.6%	88,253	5.1%	174,410	3.5%	52,953	2.6%	0	0.0%	545	0.1%	227,908	2.8%
4 Riau	0	0.0%	6,484	0.6%	35,951	2.1%	42,435	0.8%	47,304	2.3%	29,758	4.8%	14,843	3.8%	134,340	1.7%
5 Jambi	3,617	0.2%	9,694	0.9%	26,813	1.6%	40,124	0.8%	17,040	0.8%	69,168	11.3%	24,158	6.1%	150,490	1.9%
6 South Sumatra	29,047	1.3%	13,274	1.2%	42,543	2.5%	84,864	1.7%	85,947	4.2%	142,929	23.3%	132,060	33.4%	445,800	5.5%
7 Bengkulu	12,018	0.5%	20,569	1.9%	16,014	0.9%	48,601	1.0%	11,892	0.6%	63	0.0%	8,991	2.3%	69,547	0.9%
8 Lampung	104,722	4.7%	21,072	2.0%	42,124	2.4%	167,918	3.3%	92,051	4.5%	4,068	0.7%	23,898	6.0%	287,935	3.6%
9 Bangka Belitung	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Total	**296,315**	**13.2%**	**282,232**	**26.5%**	**498,897**	**28.9%**	**1,077,444**	**21.4%**	**584,635**	**28.3%**	**273,657**	**44.5%**	**237,381**	**60.0%**	**2,173,117**	**26.8%**
Java																
1 DKI Jakarta	775	0.0%	606	0.1%	1,025	0.1%	2,406	0.0%	405	0.0%	0	0.0%	0	0.0%	2,811	0.0%
2 West Java	460,572	20.6%	129,311	12.1%	316,852	18.4%	906,735	18.0%	234,725	11.4%	954	0.2%	962	0.2%	1,143,376	14.1%
3 Central Java	388,178	17.3%	125,467	11.8%	208,542	12.1%	722,187	14.4%	282,350	13.7%	2,204	0.4%	761	0.2%	1,007,502	12.4%
4 DI. Yogyakarta	19,657	0.9%	22,854	2.1%	8,870	0.5%	51,381	1.0%	8,886	0.4%	0	0.0%	0	0.0%	60,267	0.7%
5 East Java	681,421	30.4%	113,788	10.7%	126,864	7.3%	922,073	18.3%	236,718	11.5%	12	0.0%	2,622	0.7%	1,161,425	14.3%
6 Banten	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Total	**1,550,603**	**69.2%**	**392,026**	**36.8%**	**662,153**	**38.4%**	**2,604,782**	**51.8%**	**763,084**	**37.0%**	**3,170**	**0.5%**	**4,345**	**1.1%**	**3,375,381**	**41.6%**
Bali & Nusa Tenggara																
1 Bali	133	0.0%	68,794	6.4%	16,383	0.9%	85,310	1.7%	749	0.0%	0	0.0%	6	0.0%	86,065	1.1%
2 West Nusa Tenggara	121,310	5.4%	145,240	13.6%	72,645	4.2%	339,195	6.7%	60,288	2.9%	743	0.1%	130	0.0%	400,356	4.9%
3 East Nusa Tenggara	8,545	0.4%	26,418	2.5%	43,430	2.5%	78,393	1.6%	32,117	1.6%	358	0.1%	584	0.1%	111,452	1.4%
Total	**129,988**	**5.8%**	**240,452**	**22.5%**	**132,458**	**7.7%**	**502,898**	**10.0%**	**93,154**	**4.5%**	**1,101**	**0.2%**	**720**	**0.2%**	**597,873**	**7.4%**
Kalimantan																
1 West Kalimantan	45	0.0%	12,121	1.1%	73,679	4.3%	85,845	1.7%	110,297	5.3%	81,760	13.3%	60,562	15.3%	338,464	4.2%
2 Central Kalimantan	2,177	0.1%	12,857	1.2%	54,064	3.1%	69,098	1.4%	23,622	1.1%	80,793	13.1%	941	0.2%	174,454	2.2%
3 South Kalimantan	22,794	1.0%	3,594	0.3%	27,493	1.6%	53,881	1.1%	150,487	7.3%	159,881	26.0%	78,740	19.9%	442,989	5.5%
4 East Kalimantan	0	0.0%	1,027	0.1%	30,047	1.7%	31,074	0.6%	63,248	3.1%	11,296	1.8%	4,486	1.1%	110,104	1.4%
Total	**25,016**	**1.1%**	**29,599**	**2.8%**	**185,283**	**10.7%**	**239,898**	**4.8%**	**347,654**	**16.8%**	**333,730**	**54.3%**	**144,729**	**36.6%**	**1,066,011**	**13.2%**
Sulawesi																
1 North Sulawesi	28,547	1.3%	18,405	1.7%	17,143	1.0%	64,095	1.3%	13,683	0.7%	94	0.0%	252	0.1%	78,124	1.0%
2 Central Sulawesi	40,917	1.8%	27,095	2.5%	41,639	2.4%	109,651	2.2%	15,024	0.7%	1,079	0.2%	348	0.1%	126,102	1.6%
3 South Sulawesi	151,261	6.8%	58,980	5.5%	165,295	9.6%	375,536	7.5%	241,715	11.7%	817	0.1%	100	0.0%	618,168	7.6%
4 Southeast Sulawesi	16,890	0.8%	17,893	1.7%	23,384	1.4%	58,167	1.2%	5,052	0.2%	818	0.1%	7,543	1.9%	71,580	0.9%
5 Gorontalo	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Total	**237,615**	**10.6%**	**122,373**	**11.5%**	**247,461**	**14.3%**	**607,449**	**12.1%**	**275,474**	**13.3%**	**2,808**	**0.5%**	**8,243**	**2.1%**	**893,974**	**11.0%**
27 Grand Total	**2,239,537**	**100%**	**1,066,682**	**100%**	**1,726,252**	**100%**	**5,032,471**	**100%**	**2,064,001**	**100%**	**614,466**	**100%**	**395,418**	**100%**	**8,106,356**	**100%**

Source: Agricultural Survey, Land Area by Utilization in Indonesia 2000, Central Bureau of Statistics, December 2001. (Publication Number 05110.0106, BPS Catalogue 5232)

Table 3.1.18 Area of Wet Land by Type of Irrigation (2/4, 2000)

Province	Technical Irrigation		Semi Technical Irrigation		Non Technical Irrigation		Irrigation Total		Rain Fed		Valley		Others		Grand Total	
Sumatra																
1 Naggroe Aceh Darussalam	50,865	2.3%	56,211	5.7%	94,940	5.7%	202,016	4.1%	96,500	4.8%	325	0.1%	1,287	0.4%	300,128	3.9%
2 North Sumatra	72,632	3.3%	78,048	8.0%	137,293	8.2%	287,973	5.9%	164,922	8.3%	29,064	5.0%	35,524	10.4%	517,483	6.6%
3 West Sumatra	34,337	1.6%	57,245	5.8%	88,920	5.3%	180,502	3.7%	49,146	2.5%	0	0.0%	1,048	0.3%	230,696	3.0%
4 Riau	0	0.0%	6,394	0.7%	35,407	2.1%	41,801	0.9%	39,252	2.0%	22,291	3.8%	14,843	4.4%	118,187	1.5%
5 Jambi	3,270	0.1%	9,967	1.0%	27,614	1.6%	40,851	0.8%	17,182	0.9%	61,605	10.5%	23,342	6.9%	142,980	1.8%
6 South Sumatra	26,351	1.2%	10,401	1.1%	38,381	2.3%	75,133	1.5%	84,388	4.2%	124,887	21.3%	146,046	43.0%	430,454	5.5%
7 Bengkulu	18,062	0.8%	21,888	2.2%	18,380	1.1%	58,330	1.2%	12,561	0.6%	61	0.0%	10,307	3.0%	81,259	1.0%
8 Lampung	99,717	4.5%	28,782	2.9%	42,758	2.6%	171,257	3.5%	79,406	4.0%	22,830	3.9%	15,119	4.4%	288,612	3.7%
9 Bangka Belitung	0	0.0%	1,350	0.1%	937	0.1%	2,287	0.0%	94	0.0%	0	0.0%	59	0.0%	2,440	0.0%
Total	**305,234**	**13.8%**	**270,286**	**27.6%**	**484,630**	**28.9%**	**1,060,150**	**21.8%**	**543,451**	**27.3%**	**261,063**	**44.5%**	**247,575**	**72.8%**	**2,112,239**	**27.1%**
Java																
1 DKI Jakarta	860	0.0%	655	0.1%	1,000	0.1%	2,515	0.1%	380	0.0%	0	0.0%	0	0.0%	2,895	0.0%
2 West Java	397,106	17.9%	113,886	11.6%	275,931	16.5%	786,923	16.2%	156,112	7.8%	0	0.0%	967	0.3%	944,002	12.1%
3 Central Java	380,985	17.2%	133,420	13.6%	203,149	12.1%	717,554	14.7%	272,478	13.7%	348	0.1%	774	0.2%	991,154	12.7%
4 DI. Yogyakarta	18,336	0.8%	23,664	2.4%	8,193	0.5%	50,193	1.0%	8,641	0.4%	0	0.0%	0	0.0%	58,834	0.8%
5 East Java	671,428	30.3%	113,919	11.6%	124,662	7.4%	910,009	18.7%	244,246	12.3%	121	0.0%	160	0.0%	1,154,536	14.8%
6 Banten	58,114	2.6%	14,827	1.5%	43,393	2.6%	116,334	2.4%	76,560	3.8%	0	0.0%	76	0.0%	192,970	2.5%
Total	**1,526,829**	**69.0%**	**400,371**	**40.9%**	**656,328**	**39.2%**	**2,583,528**	**53.1%**	**758,417**	**38.1%**	**469**	**0.1%**	**1,977**	**0.6%**	**3,344,391**	**42.9%**
Bali & Nusa Tenggara																
1 Bali	995	0.0%	67,453	6.9%	15,710	0.9%	84,158	1.7%	964	0.0%	0	0.0%	6	0.0%	85,128	1.1%
2 West Nusa Tenggara	61,674	2.8%	73,004	7.5%	38,200	2.3%	172,878	3.6%	25,542	1.3%	0	0.0%	65	0.0%	198,485	2.5%
3 East Nusa Tenggara	10,027	0.5%	25,289	2.6%	43,575	2.6%	78,891	1.6%	34,451	1.7%	362	0.1%	529	0.2%	114,233	1.5%
Total	**72,696**	**3.3%**	**165,746**	**16.9%**	**97,485**	**5.8%**	**335,927**	**6.9%**	**60,957**	**3.1%**	**362**	**0.1%**	**600**	**0.2%**	**397,846**	**5.1%**
Kalimantan																
1 West Kalimantan	1,135	0.1%	10,237	1.0%	66,826	4.0%	78,198	1.6%	110,347	5.5%	78,459	13.4%	12,491	3.7%	279,495	3.6%
2 Central Kalimantan	1,345	0.1%	12,764	1.3%	53,070	3.2%	67,179	1.4%	26,920	1.4%	82,891	14.1%	820	0.2%	177,810	2.3%
3 South Kalimantan	19,377	0.9%	3,937	0.4%	27,327	1.6%	50,641	1.0%	132,238	6.6%	148,007	25.2%	72,049	21.2%	402,935	5.2%
4 East Kalimantan	0	0.0%	1,457	0.1%	30,469	1.8%	31,926	0.7%	58,845	3.0%	14,097	2.4%	3,319	1.0%	108,187	1.4%
Total	**21,857**	**1.0%**	**28,395**	**2.9%**	**177,692**	**10.6%**	**227,944**	**4.7%**	**328,350**	**16.5%**	**323,454**	**55.1%**	**88,679**	**26.1%**	**968,427**	**12.4%**
Sulawesi																
1 North Sulawesi	18,700	0.8%	13,779	1.4%	13,045	0.8%	45,524	0.9%	10,547	0.5%	0	0.0%	126	0.0%	56,197	0.7%
2 Central Sulawesi	43,748	2.0%	28,491	2.9%	46,484	2.8%	118,723	2.4%	13,513	0.7%	886	0.2%	471	0.1%	133,593	1.7%
3 South Sulawesi	196,539	8.9%	53,361	5.4%	171,285	10.2%	421,185	8.7%	262,670	13.2%	690	0.1%	0	0.0%	684,545	8.8%
4 Southeast Sulawesi	21,653	1.0%	12,587	1.3%	24,797	1.5%	59,037	1.2%	7,792	0.4%	181	0.0%	583	0.2%	67,593	0.9%
5 Gorontalo	7,090	0.3%	6,157	0.6%	3,512	0.2%	16,759	0.3%	5,709	0.3%	25	0.0%	15	0.0%	22,508	0.3%
Total	**287,730**	**13.0%**	**114,375**	**11.7%**	**259,123**	**15.5%**	**661,228**	**13.6%**	**300,231**	**15.1%**	**1,782**	**0.3%**	**1,195**	**0.4%**	**964,436**	**12.4%**
27 Grand Total	**2,214,346**	**100%**	**979,173**	**100%**	**1,675,258**	**100%**	**4,868,777**	**100%**	**1,991,406**	**100%**	**587,130**	**100%**	**340,026**	**100%**	**7,787,339**	**100%**

Source: Agricultural Survey, Land Area by Utilization in Indonesia 2000, Central Bureau of Statistics, December 2001. (Publication Number 05110.0106, BPS Catalogue 5232)

Table 3.1.18 Area of Wet Land by Type of Irrigation (3/4, 2001)

No.	Province	Technical Irrigation		Semi Technical Irrigation		Non Technical Irrigation		Irrigation Total		Rain Fed		Valley		Others		Grand Total	
	Sumatra																
1	Naggroe Aceh Darussalam	57,996	2.6%	55,899	5.7%	83,331	5.1%	197,226	4.1%	89,540	4.6%	525	0.1%	1,283	0.4%	288,574	3.7%
2	North Sumatra	70,774	3.2%	80,247	8.2%	144,485	8.8%	295,506	6.1%	160,100	8.1%	28,589	4.8%	40,454	11.6%	524,649	6.7%
3	West Sumatra	37,619	1.7%	53,179	5.4%	91,558	5.6%	182,356	3.7%	47,260	2.4%	0	0.0%	25	0.0%	229,641	3.0%
4	Riau	0	0.0%	7,978	0.8%	28,663	1.7%	36,641	0.8%	43,461	2.2%	28,521	4.7%	3,312	1.0%	111,935	1.4%
5	Jambi	3,483	0.2%	9,929	1.0%	25,505	1.6%	38,917	0.8%	15,895	0.8%	61,154	10.2%	25,279	7.3%	141,245	1.8%
6	South Sumatra	26,296	1.2%	11,307	1.2%	39,829	2.4%	77,432	1.6%	85,839	4.4%	125,156	20.8%	151,241	43.5%	439,668	5.7%
7	Bengkulu	18,101	0.8%	20,649	2.1%	17,710	1.1%	56,460	1.2%	15,251	0.8%	73	0.0%	11,329	3.3%	83,113	1.1%
8	Lampung	98,887	4.4%	27,979	2.8%	41,579	2.5%	168,445	3.5%	71,785	3.7%	23,719	3.9%	14,186	4.1%	278,135	3.6%
9	Bangka Belitung	0	0.0%	640	0.1%	311	0.0%	951	0.0%	28	0.0%	0	0.0%	0	0.0%	979	0.0%
	Total	**313,156**	**14.0%**	**267,807**	**27.3%**	**472,971**	**28.8%**	**1,053,934**	**21.7%**	**529,159**	**26.9%**	**267,737**	**44.6%**	**247,109**	**71.1%**	**2,097,939**	**27.0%**
	Java																
1	DKI Jakarta	860	0.0%	656	0.1%	945	0.1%	2,461	0.1%	355	0.0%	0	0.0%	0	0.0%	2,816	0.0%
2	West Java	399,138	17.8%	119,253	12.1%	261,570	15.9%	779,961	16.0%	143,833	7.3%	0	0.0%	1,077	0.3%	924,871	11.9%
3	Central Java	382,897	17.1%	123,098	12.5%	210,402	12.8%	716,397	14.7%	273,185	13.9%	238	0.0%	1,431	0.4%	991,251	12.7%
4	DI. Yogyakarta	18,040	0.8%	23,908	2.4%	6,556	0.4%	48,504	1.0%	10,038	0.5%	0	0.0%	0	0.0%	58,542	0.8%
5	East Java	674,127	30.0%	117,788	12.0%	123,014	7.5%	914,929	18.8%	241,693	12.3%	178	0.0%	2,792	0.8%	1,159,592	14.9%
6	Banten	57,231	2.6%	15,425	1.6%	39,685	2.4%	112,341	2.3%	89,560	4.6%	0	0.0%	145	0.0%	202,046	2.6%
	Total	**1,532,293**	**68.3%**	**400,128**	**40.8%**	**642,172**	**39.1%**	**2,574,593**	**52.9%**	**758,664**	**38.6%**	**416**	**0.1%**	**5,445**	**1.6%**	**3,339,118**	**42.9%**
	Bali & Nusa Tenggara																
1	Bali	375	0.0%	70,004	7.1%	14,481	0.9%	84,860	1.7%	659	0.0%	0	0.0%	6	0.0%	85,525	1.1%
2	West Nusa Tenggara	70,203	3.1%	76,281	7.8%	35,683	2.2%	182,167	3.7%	32,390	1.6%	19	0.0%	0	0.0%	214,576	2.8%
3	East Nusa Tenggara	14,000	0.6%	22,179	2.3%	44,975	2.7%	81,154	1.7%	32,060	1.6%	14	0.0%	48	0.0%	113,276	1.5%
	Total	**84,578**	**3.8%**	**168,464**	**17.2%**	**95,139**	**5.8%**	**348,181**	**7.2%**	**65,109**	**3.3%**	**33**	**0.0%**	**54**	**0.0%**	**413,377**	**5.3%**
	Kalimantan																
1	West Kalimantan	162	0.0%	9,573	1.0%	78,124	4.8%	87,859	1.8%	106,566	5.4%	82,755	13.8%	9,833	2.8%	287,013	3.7%
2	Central Kalimantan	2,832	0.1%	13,673	1.4%	53,357	3.3%	69,862	1.4%	25,046	1.3%	86,445	14.4%	1,203	0.3%	182,556	2.3%
3	South Kalimantan	21,649	1.0%	4,064	0.4%	28,444	1.7%	54,157	1.1%	134,355	6.8%	146,628	24.4%	80,688	23.2%	415,828	5.3%
4	East Kalimantan	0	0.0%	1,599	0.2%	31,883	1.9%	33,482	0.7%	56,605	2.9%	14,522	2.4%	2,159	0.6%	106,768	1.4%
	Total	**24,643**	**1.1%**	**28,909**	**2.9%**	**191,808**	**11.7%**	**245,360**	**5.0%**	**322,572**	**16.4%**	**330,350**	**55.0%**	**93,883**	**27.0%**	**992,165**	**12.8%**
	Sulawesi																
1	North Sulawesi	18,911	0.8%	15,101	1.5%	13,935	0.8%	47,947	1.0%	13,058	0.7%	100	0.0%	100	0.0%	61,205	0.8%
2	Central Sulawesi	48,113	2.1%	28,464	2.9%	35,897	2.2%	112,474	2.3%	13,818	0.7%	1,331	0.2%	400	0.1%	128,023	1.6%
3	South Sulawesi	191,969	8.6%	52,939	5.4%	163,958	10.0%	408,866	8.4%	251,717	12.8%	690	0.1%	0	0.0%	661,273	8.5%
4	Southeast Sulawesi	23,544	1.0%	13,758	1.4%	21,449	1.3%	58,751	1.2%	4,827	0.2%	176	0.0%	321	0.1%	64,075	0.8%
5	Gorontalo	7,090	0.3%	6,157	0.6%	3,512	0.2%	16,759	0.3%	5,709	0.3%	25	0.0%	15	0.0%	22,508	0.3%
	Total	**289,627**	**12.9%**	**116,419**	**11.9%**	**238,751**	**14.6%**	**644,797**	**13.2%**	**289,129**	**14.7%**	**2,322**	**0.4%**	**836**	**0.2%**	**937,084**	**12.0%**
27	**Grand Total**	**2,244,297**	**100%**	**981,727**	**100%**	**1,640,841**	**100%**	**4,866,865**	**100%**	**1,964,633**	**100%**	**600,858**	**100%**	**347,327**	**100%**	**7,779,683**	**100%**

Source: Agricultural Survey, Land Area by Utilization in Indonesia 2001, Central Bureau of Statistics, December 2001. (Publication Number 05110.0301, BPS Catalogue 5232)

Table 3.1.18 Area of Wet Land by Type of Irrigation (4/4, 2002)

	Province	Technical Irrigation		Semi Technical Irrigation		Non Technical Irrigation		Irrigation Total		Rain Fed		Valley		Others		Grand Total	
	Sumatra																
1	Naggroe Aceh Darussalam	57,996	2.6%	55,899	5.7%	83,331	5.3%	197,226	4.1%	89,540	4.4%	525	0.1%	1,283	0.4%	288,574	3.7%
2	North Sumatra	70,360	3.2%	76,222	7.7%	120,083	7.6%	266,665	5.6%	149,547	7.4%	25,927	4.2%	29,110	8.7%	471,249	6.1%
3	West Sumatra	37,149	1.7%	59,130	6.0%	94,917	6.0%	191,196	4.0%	53,130	2.6%	0	0.0%	80	0.0%	244,406	3.2%
4	Riau	0	0.0%	7,978	0.8%	28,663	1.8%	36,641	0.8%	43,461	2.2%	28,521	4.6%	3,312	1.0%	111,935	1.4%
5	Jambi	3,772	0.2%	9,087	0.9%	25,426	1.6%	38,285	0.8%	16,242	0.8%	53,090	8.6%	20,452	6.1%	128,069	1.7%
6	South Sumatra	27,734	1.3%	10,350	1.0%	40,729	2.6%	78,813	1.6%	84,420	4.2%	147,040	23.9%	148,967	44.7%	459,240	5.9%
7	Bengkulu	21,779	1.0%	18,144	1.8%	18,297	1.2%	58,220	1.2%	19,174	1.0%	1,556	0.3%	9,412	2.8%	88,362	1.1%
8	Lampung	102,174	4.6%	20,511	2.1%	42,804	2.7%	165,489	3.5%	95,316	4.7%	32,002	5.2%	18,005	5.4%	310,812	4.0%
9	Bangka Belitung	270	0.0%	450	0.0%	985	0.1%	1,705	0.0%	110	0.0%	0	0.0%	0	0.0%	1,815	0.0%
	Total	**321,234**	**14.5%**	**257,771**	**26.1%**	**455,235**	**28.7%**	**1,034,240**	**21.6%**	**550,940**	**27.3%**	**288,661**	**46.9%**	**230,621**	**69.2%**	**2,104,462**	**27.2%**
	Java																
1	DKI Jakarta	860	0.0%	656	0.1%	995	0.1%	2,511	0.1%	355	0.0%	0	0.0%	0	0.0%	2,866	0.0%
2	West Java	373,965	16.9%	125,278	12.7%	250,855	15.8%	750,098	15.7%	161,859	8.0%	15	0.0%	1,383	0.4%	913,355	11.8%
3	Central Java	390,147	17.7%	124,532	12.6%	195,072	12.3%	709,751	14.8%	273,973	13.6%	313	0.1%	1,773	0.5%	985,810	12.7%
4	DI. Yogyakarta	18,490	0.8%	23,481	2.4%	6,674	0.4%	48,645	1.0%	9,608	0.5%	0	0.0%	0	0.0%	58,253	0.8%
5	East Java	670,927	30.4%	113,036	11.4%	119,191	7.5%	903,154	18.9%	242,562	12.0%	448	0.1%	843	0.3%	1,147,007	14.8%
6	Banten	61,863	2.8%	16,004	1.6%	42,602	2.7%	120,469	2.5%	88,672	4.4%	0	0.0%	145	0.0%	209,286	2.7%
	Total	**1,516,252**	**68.6%**	**402,987**	**40.8%**	**615,389**	**38.8%**	**2,534,628**	**53.0%**	**777,029**	**38.6%**	**776**	**0.1%**	**4,144**	**1.2%**	**3,316,577**	**42.8%**
	Bali & Nusa Tenggara																
1	Bali	2,882	0.1%	64,871	6.6%	13,678	0.9%	81,431	1.7%	801	0.0%	0	0.0%	6	0.0%	82,238	1.1%
2	West Nusa Tenggara	66,826	3.0%	80,686	8.2%	37,126	2.3%	184,638	3.9%	33,839	1.7%	19	0.0%	0	0.0%	218,496	2.8%
3	East Nusa Tenggara	14,924	0.7%	27,807	2.8%	41,266	2.6%	83,997	1.8%	33,740	1.7%	10	0.0%	66	0.0%	117,813	1.5%
	Total	**84,632**	**3.8%**	**173,364**	**17.5%**	**92,070**	**5.8%**	**350,066**	**7.3%**	**68,380**	**3.4%**	**29**	**0.0%**	**72**	**0.0%**	**418,547**	**5.4%**
	Kalimantan																
1	West Kalimantan	0	0.0%	9,573	1.0%	82,635	5.2%	92,208	1.9%	108,212	5.4%	94,481	15.4%	4,480	1.3%	299,381	3.9%
2	Central Kalimantan	5,403	0.2%	14,111	1.4%	53,007	3.3%	72,521	1.5%	40,353	2.0%	54,163	8.8%	1,680	0.5%	168,717	2.2%
3	South Kalimantan	19,455	0.9%	4,590	0.5%	29,887	1.9%	53,932	1.1%	118,373	5.9%	157,118	25.5%	90,954	27.3%	420,377	5.4%
4	East Kalimantan	80	0.0%	5,023	0.5%	23,797	1.5%	28,900	0.6%	72,767	3.6%	17,794	2.9%	489	0.1%	119,950	1.5%
	Total	**24,938**	**1.1%**	**33,297**	**3.4%**	**189,326**	**11.9%**	**247,561**	**5.2%**	**339,705**	**16.9%**	**323,556**	**52.6%**	**97,603**	**29.3%**	**1,008,425**	**13.0%**
	Sulawesi																
1	North Sulawesi	19,589	0.9%	16,559	1.7%	14,588	0.9%	50,736	1.1%	13,035	0.6%	50	0.0%	50	0.0%	63,871	0.8%
2	Central Sulawesi	43,396	2.0%	29,894	3.0%	36,481	2.3%	109,771	2.3%	10,095	0.5%	681	0.1%	413	0.1%	120,960	1.6%
3	South Sulawesi	168,782	7.6%	54,803	5.5%	156,393	9.9%	379,978	7.9%	247,191	12.3%	1,250	0.2%	100	0.0%	628,519	8.1%
4	Southeast Sulawesi	22,259	1.0%	14,711	1.5%	22,816	1.4%	59,786	1.2%	4,755	0.2%	198	0.0%	321	0.1%	65,060	0.8%
5	Gorontalo	8,118	0.4%	5,435	0.5%	4,655	0.3%	18,208	0.4%	4,219	0.2%	0	0.0%	0	0.0%	22,427	0.3%
	Total	**262,144**	**11.9%**	**121,402**	**12.3%**	**234,933**	**14.8%**	**618,479**	**12.9%**	**279,295**	**13.9%**	**2,179**	**0.4%**	**884**	**0.3%**	**900,837**	**11.6%**
27	**Grand Total**	**2,209,200**	**100%**	**988,821**	**100%**	**1,586,953**	**100%**	**4,784,974**	**100%**	**2,015,349**	**100%**	**615,201**	**100%**	**333,324**	**100%**	**7,748,848**	**100%**

Source: Agricultural Survey, Land Area by Utilization in Indonesia 2002, Central Bureau of Statistics, December 2003. (Publication Number 05110.0308, BPS Catalogue 5232)

Table 3.1.19 Comparison of Three Government Regulations on Irrigation (1/2)

1. New Development

Target	GR-23/82 & IOMP/87	GR-77/2001	Draft New GR
Main System	Province	Central/Prov./District Responsibility sharing based on mutual agreement	Central: - Nat. Strategic - cross Prov. - cross country Province: cross District District: within District
Tertiary System	Province: 50 m canal WUA: the rest	WUA	WUA Govt. prepare fund for 50 m canal + all tertiary structures
Groundwater Well & Pump	Not regulated Practically: Central	Not mentioned	Same as main system
Groundwater irrigation system	Not regulated Practically : Central	Not mentioned	WUA
Extension & Improvement	Same as new develop.	WUA with govt. fund	Same as new dev.

2. O&M and Rehabilitation

Target	GR-23/82 & IOMP/87	GR-77/2001	Draft New GR
Main System	Province	WUA Fund : Govt. + WUA	Central: - Nat. Strategic - cross Prov. - cross country + 3,000 ha & above Province: cross District + 1,000 to 3,000 ha District: within District + below 1,000 ha
Tertiary System	WUA	WUA	WUA
GW. Well & Pump	Not regulated Practically : Central	Not mentioned	Same as main system
GW irrig. system	Not regulated Practically : Central	Not mentioned	WUA
Turn Over/Transfer	Below 500 ha + assets	All systems without assets	No turn over but Participation

Table 3.1.19 Comparison of Three Government Regulations on Irrigation (2/2)

3. Institutions

Target	GR-23/82 & IOMP/87	GR-77/2001	Draft New GR
Government responsibility at :	Province and District	District (only)	District Province Central: can be delegated to Province or District
WUA establishment	- farmers may establish - Governor's decree	- farmers may establish - no govt. decree required	- farmers need to establishe - Bupati's decree
WUA empowerment	District	Prov. and District	District
Coord. within a scheme	WUA Federation	WUA Federation 'Forum' among users	WUA Federation 'Forum' among users
Coord.: District level	Irrigation Committee WUA - member	Irrigation Committee WUA - member	Irrigation Committee WUA - member
Coord.: Province level	Irrigation Committee	Not mentioned	Irrigation Committee
Cross Prov. schemes	Not mentioned	Not mentioned	'Forum' inter Prov. Committee

4. O & M Fund

Target	GR-23/82 & IOMP/87	GR-77/2001	Draft New GR
Irrigation Service Fee	Applied in stepwise	Not clearly regulated	Applied in stepwise
Specific O&M budget	No specific budget	District: DPIK *) Usage: by Committee recommendation	District: DPIK Province: DPIP **) Usage: by Committee recommendation
Budget Usage	Govt. fund by Govt. ISF by WUA	Govt. fund by WUA ISF by WUA	Govt. fund by Govt. ISF by WUA
Responsibility of other infrastructures user	Not regulated	Not regulated	Participate O&M budget proportionally

*) Dana Pengelolaan Irigasi Kabupaten (District Irrigation Management Fund)

**) Dana Pengelolaan Irigasi Provinsi (Province Irrigation Management Fund)

5. Others

Target	GR-23/82 & IOMP/87	GR-77/2001	Draft New GR
Village Irrigation	WUA responsible Govt. : assist	Not regulated	WUA responsible Govt. : assist
Assets Management	-. Not regulated -. Infrastructures (inventory only)	For infrastructures only	Infrastructures and other supporting facilities (land, human resources, etc.)
Information system	Not mentioned	Regulated	Regulated
Land use changes	Not regulated	Compensation	Prevention
Development Planning	No public consultation	With public consultation	With public consultation
Basic Principal	Govt. responsible Farmers participate	Farmers responsible Govt. facilitating	Govt. responsible Farmers participate

Source: Study Team

Table 3.1.20 Current Situation of Agricultural Extension Institution

Province	Districts	Current Situation									Total
		BIPP (1)	Agency (2)	Office (3)	Unit (4)	Sub-Division (5)	Section (6)	Functional Position Group (7)	Not decided yet (8)	District / City Without any institution (9)	
1 DI. Aceh	16	0	1	7	0	3	0	4	0	1	16
2 Sumatera Utara	20	1	0	4	2	7	4	2	0	0	20
3 Sumatera Barat	16	1	0	0	0	8	0	6	0	1	16
4 Riau	16	1	0	3	0	3	3	3	1	2	16
5 Jambi	10	0	0	1	1	6	0	2	0	0	10
6 Bengkulu	6	4	0	2	0	0	0	0	0	0	6
7 Lampung	10	0	0	1	0	4	2	3	0	0	10
8 Sumatera Selatan	10	0	0	0	2	3	0	2	0	3	10
9 DKI Jakarta	6	0	0	0	0	0	0	6	0	0	6
10 Jawa Barat	24	1	0	7	1	5	0	9	0	1	24
11 DI. Yogyakarta	5	0	0	0	2	1	0	1	1	0	5
12 Jawa Tengah	35	1	0	1	4	3	2	23	1	0	35
13 Jawa Timur	38	4	0	7	0	7	2	17	1	0	38
14 Bali	9	0	0	0	0	3	0	6	0	0	9
15 NTB	7	0	1	2	1	1	1	1	0	0	7
16 NTT	14	0	3	7	0	3	1	0	0	0	14
17 Kalimantan Barat	10	0	0	0	0	5	0	4	0	1	10
18 Kalimantan Tengah	6	0	0	1	2	0	0	3	0	0	6
19 Kalimantan Selatan	11	0	0	5	0	1	0	5	0	0	11
20 Kalimantan Timur	12	2	0	1	0	3	2	4	0	0	12
21 Sulawesi Utara	9	2	1	0	2	1	0	0	0	3	9
22 Sulawesi Tenggara	6	0	0	4	1	0	0	1	0	0	6
23 Sulawesi Tengah	11	2	0	3	2	0	2	0	0	2	11
24 Sulawesi Selatan	27	2	0	9	1	6	0	8	0	1	27
25 Maluku	5	0	0	2	0	1	0	1	1	0	5
26 Irian Jaya	16	2	0	4	0	2	0	3	3	2	16
27 Banten	6	0	0	0	0	1	0	3	2	0	6
28 Gorontalo	3	0	0	0	0	2	1	0	0	0	3
29 Bangka-Belitung	4	0	0	0	1	1	1	1	0	0	4
30 Muluku Utara	7	1	0	1	0	0	2	2	0	1	7
Total	375	24	6	72	22	80	23	120	10	18	375

Note:
- Since extension system is managed by province, the names of organizations are not unified across districts. However, the organizations can be classified into the following categories according to function. organizations can be classified into the following categories according to function.
- (1), (2), (3): Units operated as it is under Governor. Their ordinary function is maintained.
- (4), (5), (6), (7): Units transfered to the the agricultural department of the Districts: only the function is transferred with the breakup of the BIPP.
- (8): not settled down in restrucuring the BIPP
- (9): New District/City which the institution is not established yet.

Source: Ministry of Agriculture (30 July 2004)

Table 3.1.21 Deployment of Extension Officers by Province

Province	Kabupaten	Kecamatan	Desa	BIPP and Others*)	BPP	Farmers Group	Famers Household	Extension Officer
1 DI. Aceh	13	185	4,992	15	155	8,457	443,351	1,083
2 Sumatera Utara	19	262	1,997	20	242	17,908	1,267,040	1,804
3 Sumatera Barat	15	171	1,858	15	120	8,136	642,020	1,210
4 Riau	14	101	636	13	81	8,310	450,073	986
5 Jambi	10	89	715	10	61	6,405	525,704	1,648
6 Bengkulu	4	49	674	6	35	3,455	456,674	653
7 Lampung	10	104	1,428	10	94	12,213	929,746	1,140
8 Sumatera Selatan	7	135	1,809	7	95	15,783	687,054	1,394
9 Bangka-Belitung	3	36	186	4	13	944	91,370	180
Sumatra	**95**	**1,132**	**14,295**	**100**	**896**	**81,611**	**5,493,032**	**10,098**
10 DKI Jakarta	6	0	0	6	9	369	0	162
11 Jawa Barat	23	487	4,180	23	424	30,813	4,549,350	2,963
12 Banten	6	184	600	4	182	13,326	1,831,370	986
13 DI. Yogyakarta	5	61	161	4	49	4,950	295,422	352
14 Jawa Tengah	35	540	6,237	34	449	33,756	4,575,128	3,015
15 Jawa Timur	37	609	5,287	37	564	28,528	5,751,536	3,021
Jawa	**112**	**1,881**	**16,465**	**108**	**1,677**	**111,742**	**17,002,806**	**10,499**
16 Bali	9	37	156	9	31	4,885	533,119	532
17 NTB	7	88	306	7	63	8,255	444,388	984
18 NTT	14	128	1,180	14	124	6,106	623,463	1,080
Bali Nusa Tenggra	**30**	**253**	**1,642**	**30**	**218**	**19,246**	**1,600,970**	**2,596**
19 Kalimantan Barat	9	104	430	9	71	6,973	361,923	918
20 Kalimantan Tengah	6	85	731	6	56	5,129	207,039	877
21 Kalimantan Selatan	11	105	918	11	90	9,194	395,926	1,116
22 Kalimantan Timur	12	73	329	12	46	3,738	59,695	405
Kalimantan	**38**	**367**	**2,408**	**38**	**263**	**25,034**	**1,024,583**	**3,316**
23 Sulawesi Utara	5	79	1,173	6	76	4,235	306,768	788
24 Gorontalo	3	21	0	3	23	0	113,484	182
25 Sulawesi Tenggara	5	77	520	6	79	5,246	197,039	1,024
26 Sulawesi Tengah	8	75	955	9	58	5,674	331,555	937
27 Sulawesi Selatan	24	256	1,784	26	511	15,530	793,606	2,044
Sulawesi	**45**	**508**	**4,432**	**50**	**747**	**30,685**	**1,742,452**	**4,975**
28 Maluku	5	8	187	4	4	223	0	270
29 Muluku Utara	3	43	172	6	17	3,320	227,696	239
30 Irian Jaya	14	111	303	11	70	3,927	132,668	890
Maluku & Irian Jaya	**22**	**162**	**662**	**21**	**91**	**7,470**	**360,364**	**1,399**
Province (Dinas/Agency)								**444**
Central + Central Technical Service Unit								**332**
Total	**342**	**4,303**	**39,904**	**347**	**3,892**	**275,788**	**27,224,207**	**33,659**

Source: Internal data from Ministry of Agriculture, July 2004

*): Agriculture Extension institutions including BIPP, Agency, Office, Unit, sub-division, section, and functional position group (Table 3.1.20)

Table 3.1.22 Classification of Households by Income Source in Rural Areas

(Unit : %)

Province	Source of Income					Total
	Non-Agriculture	Agriculture	Mixed			
			Main Source Agriculture	Main Source Non-Agriculture	Sub-total of Mixed	
1 DI. Aceh	25.5%	57.6%	8.5%	8.4%	16.9%	**100.0%**
2 Sumatera Utara	22.5%	60.8%	7.9%	8.8%	16.8%	**100.0%**
3 Sumatera Barat	28.2%	46.4%	12.0%	13.3%	25.3%	**100.0%**
4 Riau	26.3%	59.1%	8.6%	6.1%	14.7%	**100.0%**
5 Jambi	19.6%	62.9%	10.2%	7.4%	17.6%	**100.0%**
6 Sumatera Selatan	23.1%	62.0%	8.2%	6.7%	14.9%	**100.0%**
7 Bengkulu	18.7%	61.1%	10.1%	10.1%	20.2%	**100.0%**
8 Lampung	18.2%	66.7%	8.9%	6.1%	15.0%	**100.0%**
Sumatera	**22.7%**	**60.2%**	**9.0%**	**8.1%**	**17.1%**	**100.0%**
9 DKI Jakarta						
10 Jawa Barat	38.7%	33.6%	12.5%	15.2%	27.7%	**100.0%**
11 Jawa Tengah	28.6%	39.3%	15.6%	16.5%	32.1%	**100.0%**
12 DI. Yogyakarta	23.2%	32.2%	18.6%	26.0%	44.5%	**100.0%**
13 Jawa Timur	26.6%	41.4%	15.8%	16.2%	31.9%	**100.0%**
Jawa	**31.2%**	**38.0%**	**14.7%**	**16.1%**	**30.8%**	**100.0%**
14 Bali						
15 NTB	28.6%	40.5%	17.0%	13.9%	30.9%	**100.0%**
16 NTT	13.2%	70.9%	11.4%	4.5%	15.9%	**100.0%**
17 Timor Timur	19.4%	67.5%	6.8%	6.2%	13.1%	**100.0%**
Bali & Nusa Tenggala	**21.2%**	**56.1%**	**13.6%**	**9.1%**	**22.7%**	**100.0%**
18 Kalimantan Barat	19.1%	59.9%	14.1%	7.0%	21.1%	**100.0%**
19 Kalimantan Tengah	20.1%	57.3%	13.5%	9.0%	22.6%	**100.0%**
20 Kalimantan Selatan	25.3%	45.7%	17.3%	11.7%	28.9%	**100.0%**
21 Kalimantan Timur	38.1%	40.5%	11.0%	10.5%	21.5%	**100.0%**
Kalimantan	**24.2%**	**52.1%**	**14.4%**	**9.3%**	**23.8%**	**100.0%**
22 Sulawesi Utara	26.3%	51.2%	12.7%	9.8%	22.5%	**100.0%**
23 Sulawesi Tengah	22.1%	53.5%	14.2%	10.2%	24.4%	**100.0%**
24 Sulawesi Selatan	20.0%	57.1%	13.3%	9.6%	22.9%	**100.0%**
25 Sulawesi Tenggara	18.9%	51.9%	14.2%	15.0%	29.2%	**100.0%**
Sulawesi	**21.5%**	**54.7%**	**13.4%**	**10.4%**	**23.8%**	**100.0%**
26 Maluku	21.7%	59.2%	9.5%	9.6%	19.1%	**100.0%**
27 Irian Jaya	11.4%	77.9%	6.6%	4.1%	10.7%	**100.0%**
Maluku & Irian Jaya	**16.4%**	**68.8%**	**8.0%**	**6.7%**	**14.8%**	**100.0%**
Whole Country	**27.4%**	**46.5%**	**13.1%**	**13.0%**	**26.1%**	**100.0%**

Source: Results of the 1995 Intercensal Population Survey, Central Bureau of Statistics
(Hasil Survey Penduduk Antar Sensus 1995, BPS)

Table 3.1.23 Performace of KKP by Banks

(Unit : Million Rupiah)

	Fund	Loan Amount	Investment Rate *(%)
I. State Bank	**1,820,000**	**1,866,804**	**103.00%**
1. BANK BRI	672,800	926,713	138.00%
2. BANK BNI	187,000	101,321	54.00%
3. BANK MANDRI	191,400	57,094	30.00%
4. BANK BUKOPIN	320,400	152,385	48.00%
5. BANK BCA	50,000	15,958	32.00%
6. BANK AGRO NIAGA	232,400	503,042	216.00%
7. BANK BII	25,000	3,698	15.00%
8. BANK NIAGA	50,000	66,008	132.00%
9. BANK DANAMON	91,000	40,585	45.00%
II. Regional Development Bank	**262,240**	**190,359**	**73.00%**
1. BPD DKI	2,000	0	0.00%
2. BPD JABAR	25,000	11,008	44.00%
3. BPD JATENG	28,370	1,501	5.00%
4. BPD DIY	1,500	784	52.00%
5. BPD JATIM	57,000	99,782	175.00%
6. BPD SUMUT	2,620	317	12.00%
7. BPD RIAU	10,000	160	2.00%
8. BPD SUMBAR	2,000	517	26.00%
9. BPD SUMSEL	10,000	3,598	36.00%
10. BPD LAMPUNG	1,500	992	66.00%
11. BPD BALI	100,000	68,227	68.00%
12. BPD KALBAR	5,000	488	10.00%
13. BPD KALTENG	1,500	969	65.00%
14. BPD KALSEL	1,500	482	32.00%
15. BPD KALTIM	1,500	422	28.00%
16. BPD SULTENG	1,500	0	0.00%
17. BPD SULSEL	3,000	196	7.00%
18. BPD SULUT	5,000	0	0.00%
19. BPD MALUKU	1,250	345	28.00%
20. BPD PAPUA	2,000	571	29.00%
Total	**2,082,240**	**2,057,163**	**99.00%**

Note: Data at 1 July 2004.
No data on repayment situation
*: (Loan Amount)/(Fund) x 100 (%)
Source: Ministry of Agriculture (Internal Document)

Table 3.1.24 Performance of KKP for Commodity

(Unit：Million Rupiah)

	Food Crops	Sugarcane	Poultry	Fishery	Procure-ment of Rice	Total
1. DI. Aceh	549	-	0	-	1,824	2,373
2. Sumatera Utara	6,758	-	927	2,331	870	10,886
3. Sumatera Barat	2,028	-	1,517	0	50	3,595
4. Riau	51	-	495	22	0	568
5. Jambi	497	-	-	0	100	597
7. Sumatera Selatan	6,566	0	3,348	876	275	11,065
6. Bengkulu	390	-	110	-	0	500
8. Lampung	9,289	23,996	46,227	96	1,193	80,801
Sumatra						
9. DKI Jakarta	376	-	0	0	200	576
10. Jawa Barat	48,694	94,948	28,458	1,931	14,590	188,621
11. Jawa Tengah	18,743	345,463	12,144	164	13,159	389,673
12. DI. Yogyakarta	15,684	84,731	5,103	151	7,095	112,764
13. Jawa Timur	39,985	997,348	19,597	1,784	19,594	1,078,308
Jawa						
22. Bali	35,430	-	76,911	427	13,942	126,710
23. NTB	7,812	-	1,014	-	525	9,351
24. NTT	1,104	-	213	-	357	1,674
Bali & Nusa Tenggala						
14. Kalimantan Barat	79	-	775	174	145	1,173
15. Kalimantan Tengah	53	-	2,333	226	170	2,782
16. Kalimantan Selatan	4,542	-	1,337	65	225	6,169
17. Kalimantan Timur	510	-	449	422	90	1,471
Kalimantan						
18. Sulawesi Utara	3,883	96	0	0	0	3,979
19. Sulawesi Tengah	0	-	0	0	0	0
21. Sulawesi Selatan	6,005	7,216	319	314	2,339	16,193
20. Sulawesi Tenggara	898	-	0	-	0	898
Sulawesi						
25. Maluku	60	-	50	235	0	345
26. Papua	4,855	-	586	100	550	6,091
Maluku & Papua						
Total of loan disbursement (a)	214,841	1,553,798	201,913	9,318	77,293	2,057,163
Fund (b)	585,135	876,500	282,231	43,529	294,845	2,082,240
Investment rate (a)/(b)	37%	177%	72%	21%	26%	99%

Note: Figures in the table are data at 1 July 2004

Source: Ministry of Agriculture (Internal Document)

Table 3.1.25 Current Situation of P4K as of June 2004

Project Coverage

Povince	District	Sub-District	Village	Field Extension Worker	Self-Help Group
West Java	20	206	1,679	690	12,900
Central Java	24	295	2,726	752	16,289
DI Yogyakarta	4	58	281	185	2,498
East Java	24	349	2,675	1,001	16,243
Bali	9	52	414	266	3,788
West Nusa Tenggara	7	57	418	249	7,059
Riau	4	33	177	111	1,057
Bengkulu	4	29	234	177	1,195
South Sumatera	4	30	162	119	1,262
Lampung	7	49	206	175	1,021
South Kalimantan	6	30	252	139	1,047
South Sulawesi	9	46	326	233	2,304
Total	122	1,234	9,550	4,097	66,663

Disbursement of Credit (Rp)

Povince	Credit Disbursed
West Java	154,763,612
Central Java	225,412,520
DI Yogyakarta	41,874,325
East Java	244,445,810
Bali	75,864,725
West Nusa Tenggara	105,198,178
Riau	12,270,975
Bengkulu	7,200,979
South Sumatera	9,059,959
Lampung	9,712,800
South Kalimantan	10,991,400
South Sulawesi	50,008,297
Total	946,803,580

Situation on Operation of P4K Credit

(1) Total credit received by the groups (Rp.)	946,803,580
(2) Total repayment (principlal + interest) (Rp.)	830,660,957
Total repayment (principal) (Rp.)	728,222,703
Total repayment (interest) (Rp.)	102,438,254
Repayment to credit disbursement (%)	76.91%
(3) Total credit outstanding (Rp.)	218,580,877
(4) Total arrears	50,565,262
Arrears to credit disbursement (%)	5.34%
Arrears to credit outstanding (%)	23.13%

Source) Section for P4K, Ministry of Agriculture

Table 3.2.1 List of New Legal Document in 2002 to 2004 on Fisheries Sector (1/5)

Document No.	Contents
MMAF Ministerial Decree No. 21/2004	• Fish Product Quality Controlling System for European Union Market • Qualifications (articles 3 and 4) • Implementations (articles 8 and 9) • Vessel qualifications (enclosure 1) • Landing and Distribution Qualifications (enclosure 2) • Fish Processing Units Qualification (enclosure 3) • Fish Product Handling Qualification (enclosure 4) • Production Monitoring and Surveillance (enclosure 5) • Labelling and Packaging (enclosure 6) • Storage and Transportations (enclosure 7)
MMAF Ministerial Decree No. 18/2004	• General Guidance on Coastal Community Economic Utilization Program • Coastal Community Economic Utilization Program (goals, targets, institutions) (chapter 2) • Mechanisms of Coastal Community Economic Utilization Program (chapter 3) • Controlling and Evaluations of Coastal Community Economic Utilization Program (chapter 4)
MMAF Ministerial Decree No. 11/2004	• Base ports for Fishing Vessels • Base ports for foreign-flagged Fishing Vessels (article 2) • Base ports for Indonesian-flagged Fishing Vessels (article 3) • Base ports and transit ports for Indonesian-flagged or foreign-flagged Fishing Vessels (article 4)
MMAF Ministerial Decree No. 10/2004	• Fishing port functions (article 7) • Fishing ports classifications (article 10) • Fishing ports development (article 13) • Fishing ports operation (article 16) • Fishing ports' bussiness (article 18)

Table 3.2.1 List of New Legal Document in 2002 to 2004 on Fisheries Sector (2/5)

Document No.	Contents
MMAF Ministerial Decree No. 2/2004	• Aquaculture Bussiness License • Scope and Bussiness Qualifications (Articles 2, 3 and 4) • License Issue mechanism, Fishery Bussiness License (IUP) on Aquaculture (Chapter III, articles 5 – 19) • License Documents for Fish transporting Vessels (Chapter III, articles 20-28) • License Documents for Fish transporting Vessels which Agented by Non-Fishery Company (Chapter III, articles 29-32) • License Period and Extension (articles 36-43) • Analysis on Environmental Impact (articles 45-46)
MMAF Ministerial Decree No. 03/2003	• Forming of Steering Committee, Technical Committee, and Organizing Committee of Rehabilitation Project and Management of Coral Reef Phase II (Coral Reef Rehabilitation and Management Project Phase II/COREMAP II) (First part). • Job Description of Steering Committee: 1) to supervise the project, 2) to decide the policies concerning the project (Second part, A). • Job Description of Technical Committee: 1) To negotiate with the fund giver, 2) To guide the team technically, 3) To facilitate the project implementation (Second part, B). • Job Description of Organizing Committee: 1) To analyze the COREMAP planning documents, 2) To prepare the composition which will be negotiate, 3) To socialize the project to the local government (second part, C)
MMAF Ministerial Decree No. 10/2003	• License of Fishing or *Izin Usaha Perikanan* (IUP) in fish capture (article / item No. 3 - 12) • Fish Capture Letter or *Surat Penangkapan Ikan* (SPI) (article/item No. 13 – 22) • Permit Letter of Fishing Ship or *Surat Izin Kapal Pengangkut Ikan* (SIKPI) (article / item no 23 – 35)
MMAF Ministerial Decree No. 13/2003	• Forming of Mina Mandiri Credit Guiding Team • The Mina Mandiri Guiding Team consists of: 1) Steering Team, 2) Central Guiding Team (Organizing Team, Secretariat Team), 3) Local Guiding Team (First part)

Table 3.2.1 List of New Legal Document in 2002 to 2004 on Fisheries Sector (3/5)

Document No.	Contents
MMAF Ministerial Decree No. 01/2002	• Fisheries Product Quality Management System • The system is the Integrated Quality Management (PMMT) based on the Hazard Analysis Critical Control Point (HACCP) concept (item no. 13) • PMMT implementation is classified into five groups: Level I (Very Excellent), Level II (Excellent), Level III (Good), Level IV (Sufficient), Level V (Failed) (item no. 14) • Each exported fisheries product must be completed with Certificate of Quality or Health Certificate issued by the Testing Laboratorium (item no. 15). ➢ For the Level I Quality Management System management units, sampling and laboratorium testing can be conducted 1 (one) time for 10 (ten) times of certificate issues of the same product ➢ For the Level II Quality Management System management units, sampling and laboratorium testing can be conducted 1 (one) time for 5 (five) times of certificate issues of the same product. ➢ For the Level III Quality Management System management units, sampling and laboratorium testing can be conducted 1 (one) time for 3 (three) times of certificate issues of the same product. ➢ For the Level IV Quality Management System management units, sampling and laboratorium testing must be conducted for every certificate issue ➢ The Level V Quality Management System management units cannot possess the certificate.
MMAF Ministerial Decree No. 03/2002	• Log Book of Fish Capture and Transportation ➢ Log Book of Fish Capture and Transportation consists of Form A, Form B, and Form C (item no. 5 (1)). ➢ Form A contains reports of each fish capture and transportation. This form is filled by the Captain (item no. 5 (2)). ➢ Form B contains physical and administration data of fisheries ship in conducting fish capture and transportation. The form is filled by the Fisheries Supervisor (item no. 5 (3)). ➢ Form C contains information of Operational Qualification license for fish capture or fish transportation ship which issued by the Fisheries Supervisor (item no. 5 (4)). ➢ Each ship that will conduct fish capture and transportation is obliged to posses the original Log Book of Fish Capture and Transportation (LBP) and Operational Qualification license (LLO) (item no. 6 (1)). ➢ LBP will be given to the ship's Captain by the Fisheries Supervisor if the ship has fulfilled technical and administration terms and conditions (item no. 6 (2)).

Table 3.2.1 List of New Legal Document in 2002 to 2004 on Fisheries Sector (4/5)

<table>
<tr><th>Document No.</th><th>Contents</th></tr>
<tr><td>MMAF
Ministerial Decree
No. 08/2002</td><td>• Structure of Department’s Information Management System
➢ Reporting subsystem, consists of development project implementation and routine activities, report from technical unit, report from fishermen’s welfare level, report of human resources potentials, and structural report from echelon I and II (second part, 4 (a)).
➢ Databank subsystem, consists of project databank, routine budget databank, technical unit databank, fishermen’s welfare databank, human resources potentials databank, management support databank, and specific databanks from echelon I and II (second part, 4 (b)).
➢ Application subsystem, consists of application program to fulfill the need of data description and job units in the Department (second part, 4 c)).
• The structures are implemented through facilitation of data analysis software and hardware, data communication network, softwares, human resources, and information system (third part).</td></tr>
<tr><td>MMAF
Ministerial Decree
No. 10/2002</td><td>• Coastal and Marine Resources Management and Planning
• The component will strengthen local government’s management and planning capability through the Integrated Coastal Zone Planning Management (ICZPM). The basics of ICZPM are (part 3):
➢ Strategic plan. This is a plan, which is based on provincial and cities problem’s identification, which states a clear planning on the implementation (part 3.6 (1)).
➢ Zoning. This is a plan that allocates marine resources into. zone frames (part 3.6 (2)).
➢ Management plan. This is a plan that consists of conservatory and protection planning, also the handling of institutional or law problems. (part 3.6 (3)).
➢ Action plan. This is the detail of programs and projects(part 3.6 (4)).</td></tr>
</table>

Table 3.2.1 List of New Legal Document in 2002 to 2004 on Fisheries Sector (5/5)

Document No.	Contents
MMAF Ministerial Decree No. 17/2002	• Implementation of Coordination Meeting and Technical Meeting of The Ministry of Marine and Fisheries • The meetings was held in May, 2002 in Jakarta (First part). • The meetings' theme was "Marine and Fisheries Development Acceleration through A Synergy Between Sectors and Community" (First part). • The meetings' committee consists of Steering Team, Composing Team, and Organizing Team (second part). ➢ Job Descriptions of Steering Team: 1) Supervise the meeting's event and materials, 2) Supervise and lead the meetings, 3) Report the meetings implementation and result to the Minister of Marine and Fisheries (third part, a). ➢ Job Description of Composing Team: 1) Assist the Steering Team in composing the result of the meetings, 2) Compose the result's proceeding (third part, b). ➢ Job Description of Organizing Team: 1) Organize the meeting according to the Steering Team, 2) Conduct the the meeting's administration issues, 3) Prepare the materials according to the Steering Team., 4) Provide the accomodation and any facilities necessary for the meeting , 5) Manage the budget (third part, c). • The Steering Team responsibles to the Minister of Marine and Fisheries. While the Organizing Team and The Composing Team responsible to the Steering Team (fourth part).

Table 3.2.2 Marine Capture Production by Species 1990 - 2002

(unit: ton)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	Increase for 2 years 00 to 02	Increase for 10 years 93 to 02
1. Flat Fishes	4,539	1,262	5,461	1,898	7,501	2,214	10,810	7,407	13,659	5,074	4,236	6,750	6,375	50.50%	236%
2. Slip mouths	41,768	43,353	45,537	52,800	57,462	66,220	71,402	89,403	79,532	91,219	69,512	87,757	89,936	29.38%	70%
3. Goat fishes	9,712	11,235	11,332	17,130	16,770	17,612	20,724	24,203	25,207	26,252	27,948	28,660	30,565	9.36%	78%
4. Red snappers	46,136	44,730	49,300	55,853	58,338	52,827	60,342	69,585	66,280	66,492	62,306	67,773	62,303	0.00%	12%
5. Groupers	15,797	16,197	21,767	30,015	39,921	34,004	38,287	42,164	43,766	43,472	48,422	48,516	48,400	-0.05%	61%
6. Giant seaperch	25,236	22,520	27,477	36,801	38,446	47,627	48,310	55,942	65,193	65,173	68,788	63,485	66,642	-3.12%	81%
7. Yellow tail	16,705	21,183	21,138	21,998	28,300	42,693	32,713	38,358	34,142	37,944	33,712	38,312	36,593	8.55%	66%
8. Drums	29,604	28,008	34,732	36,360	37,400	39,798	45,233	44,837	50,114	56,991	52,254	49,647	60,161	15.13%	65%
9. Sharks and Rays	73,272	76,827	80,139	85,138	92,776	98,098	94,691	95,998	110,788	108,393	113,626	110,311	106,398	-6.36%	25%
10. Scads	170,725	213,214	195,709	203,351	219,893	247,305	251,289	276,924	277,593	261,138	255,375	258,393	301,115	17.91%	48%
11. Trevallies	90,147	95,989	100,472	105,946	113,930	116,769	116,193	125,504	128,459	128,795	129,913	132,998	149,193	14.84%	41%
12. Mullets	21,688	24,060	26,968	28,942	30,975	31,928	35,451	35,478	35,582	35,437	36,077	33,595	36,098	0.06%	25%
13. Anchovies	127,797	135,633	133,910	142,786	150,568	157,216	161,779	183,591	166,808	163,117	173,944	190,182	168,959	-2.87%	18%
14. Fringescale sardinella	134,972	136,626	139,352	152,560	166,452	161,096	157,105	156,914	174,691	162,710	172,219	185,912	182,026	5.69%	19%
15. Indian Oil Sardinella	113,515	145,055	137,022	122,039	128,202	98,905	88,589	138,636	153,965	89,286	88,744	103,710	132,170	48.93%	8%
16. Indian mackerels	145,377	144,094	177,092	173,946	194,882	193,890	188,912	201,404	204,763	201,466	207,037	214,387	221,634	7.05%	27%
17. Tunas	88,666	78,838	90,451	76,650	89,330	101,688	115,549	116,214	168,122	136,474	163,241	153,110	148,439	-9.07%	94%
18. Skipjack tuna	114,168	132,695	152,038	147,291	157,663	159,667	182,147	187,206	227,068	244,847	236,275	214,077	203,102	-14.04%	38%
19. Eastern little tuna	139,967	150,439	155,661	160,950	186,486	184,400	208,504	212,511	236,673	236,111	250,522	233,051	266,955	6.56%	66%
20. Other fish	627,259	299,013	722,200	364,696	859,025	381,065	974,480	413,080	1,062,646	470,576	508,966	568,594	528,604	3.86%	45%
21. Prawns	143,993	150,028	163,077	174,869	175,713	179,102	184,806	208,231	220,156	235,621	245,436	258,547	236,727	-3.55%	35%
22. Other crustaceans	10,833	14,097	15,561	19,312	20,018	24,309	22,273	30,290	23,733	26,730	27,351	38,915	36,785	34.49%	90%
23. bivalves and gastropods	36,503	36,289	50,208	50,910	60,455	64,118	62,398	58,048	51,603	51,541	52,331	79,296	87,252	66.73%	71%
24. Cephalopods	17,906	17,906	24,017	24,017	32,199	32,199	38,165	38,165	46,842	46,842	51,375	79,545	81,005	57.67%	237%
25. Other molluscas	662	392	1,089	851	136	149	666	330	509	544	358	2,733	2,640	637.43%	210%
26. Jellyfish	1,346	2,655	5,826	26,443	2,803	123,076	6,740	17,719	3,861	32,652	29,516	21,465	60,096	103.60%	127%
27. Other invertebrate	2,538	3,287	2,770	3,065	4,086	3,585	4,355	4,747	4,476	5,142	5,844	3,517	3,057	-47.69%	0%
28. Seaweeds	119,276	97,815	101,762	118,395	110,438	111,575	161,543	125,979	47,515	23,152	42,712	34,450	55,731	30.48%	-53%
29. Others	-	394,172	-	451,277	-	519,795	-	614,093	-	629,253	649,151	658,792	664,545	2.37%	47%
Total	**2,370,107**	**2,537,612**	**2,692,068**	**2,886,289**	**3,080,168**	**3,292,930**	**3,383,456**	**3,612,961**	**3,723,746**	**3,682,444**	**3,807,191**	**3,966,480**	**4,073,506**	7.00%	41%

Source: Narional Fishery Statistics 2001, 2002 and 2004.

Table 3.2.3 Marine Capture Production by Type of Fishing Methods (Fishing Gears)

(unit: ton)

Fishing Method/ Fishing Gears	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	Increase 93 to 02
1. BED equiped shrimp trawl	18,249	23,846	44,928	56,625	79,619	95,536	113,596	85,667	101,366	88,844	103,468	29,124	105,838	86.9%
2. Payang	198,764	206,127	206,098	267,449	242,450	217,976	245,257	296,342	318,597	385,342	459,241	439,036	420,048	57.1%
3. Danish seine（Dogol）	22,172	26,161	42,394	40,981	45,618	48,071	52,287	47,155	60,580	65,809	68,556	92,099	74,366	81.5%
4. Beach seine	85,729	102,853	94,966	103,119	92,611	103,639	110,437	124,505	116,370	119,778	105,981	105,401	121,714	18.0%
5. Purse seine	395,857	441,135	488,686	515,291	611,464	586,241	554,573	637,458	661,354	585,680	609,243	668,769	709,128	37.6%
6. Gill net	539,190	579,102	593,524	636,495	685,307	708,428	748,414	813,759	833,909	818,629	829,376	875,325	962,769	51.3%
7. Movable bagan	126,817	140,644	153,546	149,358	160,208	183,259	181,028	193,675	218,432	215,549	224,529	208,358	224,283	50.2%
8. Non-movable bagan	93,338	87,850	87,980	96,865	88,364	81,421	85,111	104,659	94,829	93,107	104,132	96,024	113,782	17.5%
9. Scoop net	45,751	44,820	42,640	60,666	45,527	165,503	42,076	61,111	42,908	70,833	80,550	65,964	67,223	10.8%
10. Tuna long line	40,674	33,168	33,336	29,469	40,910	58,631	47,207	57,200	57,405	66,595	74,763	81,398	62,952	113.6%
11. Drift long line	17,101	24,662	20,936	26,299	29,844	26,372	33,340	43,052	37,560	48,737	43,774	43,977	52,144	98.3%
12. Set long line	52,260	53,027	50,622	56,463	78,236	69,327	73,268	74,544	76,552	75,860	78,807	98,227	86,247	52.7%
13. Skipjack pole and line	78,529	87,596	113,370	82,991	92,968	89,611	113,272	111,618	152,497	140,974	150,722	103,227	121,825	46.8%
14. Other pole and line	189,109	185,762	194,643	223,017	220,695	255,684	251,325	271,739	299,922	257,960	277,045	291,551	277,571	24.5%
15. Trolling	76,750	88,799	82,306	92,774	93,131	99,466	122,043	103,525	154,532	119,026	127,704	137,203	132,255	42.6%
16. Guiding barriers	40,574	43,915	46,641	48,688	55,200	60,437	72,038	58,599	62,479	61,473	54,318	54,400	69,984	43.7%
17. Stow net	111,131	110,093	110,218	97,043	106,271	100,838	99,824	108,794	94,206	105,196	103,726	105,294	38,208	-60.6%
18. Traps	41,076	57,099	53,767	71,359	60,399	74,040	75,200	82,096	70,214	70,455	68,808	83,945	101,110	41.7%
19. Shell fish collection	35,225	34,712	39,686	41,904	49,298	51,524	54,086	46,865	39,615	40,194	38,432	66,610	71,591	70.8%
20. Seaweed collection	115,764	97,356	98,943	115,391	110,363	111,439	132,686	118,221	46,925	23,611	43,256	32,648	55,137	-52.2%
21. Muro Ami	3,705	3,563	2,774	4,430	7,319	7,541	8,733	13,318	11,904	12,600	7,867	3,120	10,154	129.2%
22. Cast net	42,342	65,322	89,764	69,285	84,366	97,946	167,617	159,077	171,590	216,192	152,920	284,730	164,489	137.4%
Total	**2,370,107**	**2,537,612**	**2,692,068**	**2,886,289**	**3,080,168**	**3,292,930**	**3,383,458**	**3,612,961**	**3,723,746**	**3,682,444**	**3,807,191**	**3,966,430**	**4,073,506**	**41.1%**
Annual Change		7.07%	6.09%	7.21%	6.72%	6.91%	2.75%	6.78%	3.07%	-1.11%	3.39%	4.18%	2.70%	

Remark: Growth rate is annual average during the period of 10 years from 1993 to 2002.
Source: Narional Fishery Statistics 2001,2002 and 2004.

Table 3.2.4 Trends of Aquaculture Production by Target Species

(unit: ton)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	Growth Rate
Freshwater														
Common carp	89,249	84,369	93,508	131,084	135,238	152,790	178,362	146,672	109,909	139,370	149,147	191,448	199,632	3.6%
Tilapia	33,874	31,488	34,064	39,964	38,025	45,324	46,691	50422	44,301	51,424	40,926	62,818	79,175	5.9%
Catfishes	3,739	4,910	6,330	8,042	9,786	12,907	15,627	24,187	19,857	27,350	32,146	36,979	49,457	16.3%
Gouramies	12,073	10,814	12,379	16,388	11,204	15,759	17,525	17,511	18,260	19,434	21,156	26,462	23,089	5.8%
Others														
Total	138,935	323,156	146,281	195,478	194,253	226,780	258,205	238,792	192,327	237,578	243,375	317,707	351,353	5.0%
Brackish water														
Milkfish	132,432	141,024	147,032	164,448	153,093	151,256	162,127	142,709	158,666	209,758	222,228	209,525	222,317	2.5%
Black tiger prawn	67,355	96,811	98,358	87,285	83,193	89,344	96,237	96,317	74,824	92,726	93,759	103,603	112,840	2.2%
Others		85,321												
Total		323,156	245,390	251,733	236,286	240,600	258,364	239,026	233,490	302,484	315,987	313,128	335,157	2.4%
Seawater														
Seaweeds	-	-	-	-	-	-	-	-	-	133,720	187,471	212,478	223,080	18.6%
Fish (grouper, etc.)	-	-	-	-	-	-	-	-	-	2,249	2,181	3,818	8,810	57.6%
Others	-	-	-	-	-	-	-	-	-	0	7,462	-216,296	-	
Total	-	-	-	-	-	-	-	-	-	135,969	197,114			-100.0%
Grand Total	138,935	646,312	391,671	447,211	430,539	467,380	516,569	477,818	425,817	676,031	756,476	630,835	686,510	0.5%

Table 3.2.5 Trends of Aquaculture Business Units

(unit: number of business units)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	Growth Rate
1. Freshwater pond culture	658,263	696,926	714,378	789,444	816,929	816,888	821,352	790,357	735,922	736,079	747,128	745,302	746,242	-0.5%
2. Freshwater cage culture	6,536	10,817	10,487	12,316	18,071	26,355	25,815	29,397	31,434	31,676	31,907	32,331	32,593	8.4%
3. Paddy field culture	200,886	274,536	189,854	247,421	258,910	270,066	277,157	256,039	151,373	237,423	300,416	287,901	243,056	-0.1%
4. Brackish water aquaculture	89,327	104,303	109,173	110,041	121,647	125,705	132,450	132,388	144,411	183,173	186,485	190,872	193,877	4.8%
5. Floating cage culture	-	-	-	-	-	-	-	-	-	8,237	5,115	9,177	12,622	15.3%
6. Marine culture	-	-	-	-	-	-	-	-	-	6,068	17,414	23,455	23,450	56.9%
Total	**955,012**	**1,086,582**	**1,023,892**	**1,159,222**	**1,215,557**	**1,239,014**	**1,256,774**	**1,208,181**	**1,063,140**	**1,202,656**	**1,288,465**	**1,289,038**	**1,251,840**	0.8%

Table 3.2.6 Trends of Aquaculture Area

(unit: ha)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	Growth Rate
1. Freshwater pond culture	44,376	46,460	48,567	43,356	52,064	56,945	57,474	60,368	56,194	56,171	68,941	66,006	83,526	5.6%
2. Freshwater cage culture	7	11	10	18	15	46	63	130	135	34	76	80	86	13.9%
3. Paddy field culture	106,074	113,731	116,294	127,482	138,277	141,363	142,482	140,404	137,789	135,057	157,346	150,680	148,909	1.3%
4. Brackish water aquaculture	230,885	249,605	262,195	261,300	279,480	288,257	292,860	306,741	305,698	332,514	325,530	351,655	360,239	2.7%
5. Floating cage culture	-	-	-	-	-	-	-	-	-	32,144	37,413	72,280	72,665	31.2%
6. Marine culture	-	-	-	-	-	-	-	-	-	48,775	122,776	142,694	190,299	57.4%
Total	**381,342**	**409,807**	**427,066**	**432,156**	**469,836**	**486,611**	**492,879**	**507,643**	**499,816**	**604,695**	**712,082**	**783,395**	**855,724**	7.1%

Remark: Growth rate is an annual average during the period for 10 years from 1993 to 2002.

Source: National Fishery Statistics 2001 and 2002.

Table 3.2.7 Number of Aquaculture Business Units by Region

(unit: unit) t: unit)

		Freshwater pond culture	Freshwater cage culture	Paddy field culture	Brackish water aquaculture	Floating cage culture	Marine	Total	
(1999)	Sumatra	106,333	8,649	23,176	41,402	4,381	2,607	186,548	15.5%
	Java	582,263	2,945	184,044	90,661	3,714	-	863,627	71.8%
	Bali-NTT	13,638	880	10,681	4,848	142	2,763	32,952	2.7%
	Kalimantan	10,819	17,805	1,130	8,016	-	-	37,770	3.1%
	Sulawesi	11,552	1,189	18,392	37,688	-	698	69,519	5.8%
	Maluku-Papua	11,474	208	-	558	-	-	12,240	1.0%
	Total	736,079	31,676	237,423	183,173	8,237	6,068	1,202,656	100%
(2000)	Sumatra	110,946	7,489	45,906	41,370	1,412	3,178	210,301	16.4%
	Java	590,183	8,943	219,182	91,601	3,583	70	913,562	71.2%
	Bali-NTT	12,292	-	14,016	7,214	99	3,334	36,955	2.9%
	Kalimantan	10,130	13,874	1,177	5,085	21	195	30,482	2.4%
	Sulawesi	11,908	1,390	20,135	41	-	10,637	44,111	3.4%
	Maluku-Papua	11,669	211	-	571	5,115	-	17,566	1.4%
	Total	747,128	31,907	300,416	186,485		17,414	1,283,350	98%
(2001)	Sumatra	111,379	11,717	42,117	34,665	3,569	5,482	208,929	16.2%
	Java	582,037	5,110	212,607	84,337	4,758	-	888,849	69.0%
	Bali-NTT	15,499	145	11,260	7,233	89	5,764	39,990	3.1%
	Kalimantan	11,408	13,770	1,294	8,837	26	322	35,657	2.8%
	Sulawesi	16,033	1,344	20,623	42,638	735	11,887	93,260	7.2%
	Maluku-Papua	8,946	245	-	13,162	-	-	22,353	1.7%
	Total	745,302	32,331	287,901	190,872	9,177	23,455	1,289,038	100%
(2002)	Sumatra	114,533	12,691	47,008	34,651	5,477	5,494	219,854	17.6%
	Java	580,415	6,344	167,621	86,888	4,770	-	846,038	67.6%
	Bali-NTT	15,626	-	10,861	7,308	156	5,717	39,668	3.2%
	Kalimantan	10,918	12,767	335	9,502	26	322	33,870	2.7%
	Sulawesi	16,504	546	17,231	43,920	2,153	11,917	92,271	7.4%
	Maluku-Papua	8,180	245	-	11,608	40	-	20,073	1.6%
	Total	746,242	32,593	243,056	193,877	12,622	23,450	1,251,840	100%

Source: National Fishery Statistics 2001, 2002 and 2004.

Table 3.2 8 Number of Seeds Produced by Region

(unit: 1,000)

		Common Carp	Tawes	Tilapia	Nilam Carp	Catfishes	Gouramies	Total	
(1999)	Sumatra	557,839	70,610	328,387	-	87,585	59,001	1,103,422	4.9%
	Java	5,250,470	3,365,344	5,709,308	-	1,062,708	1,966,725	17,354,555	77.0%
	Bali-NTT	43,217	100,877	638,754	-	672	6,398	789,918	3.5%
	Kalimantan	920,460	1,113	361,542	-	757	571	1,284,443	5.7%
	Sulawesi	897,726	793	2,191	-	-	-	900,710	4.0%
	Maluku-Papua	433,320	157,091	295,682	-	213,310	-	1,099,403	4.9%
	Total	8,103,032	3,695,828	7,335,810	-	1,365,032	2,032,695	22,532,397	100%
(2000)	Sumatra	304,474	119,701	188,902	140,700	249,250	113,032	1,116,059	10.5%
	Java	2,166,478	3,858,324	229,477	41,531	599,372	215,768	7,110,950	67.0%
	Bali-NTT	12,125	2,011	4,917	655	1,436	2,048	23,192	0.2%
	Kalimantan	107,734	151	27,792	-	130	-	135,807	1.3%
	Sulawesi	864,183	494	35,926	-	-	-	900,603	8.5%
	Maluku-Papua	913,641	79,215	226,163	-	-	15,000	1,234,019	11.6%
	Total	4,368,635	4,059,896	713,177	182,886	942,488	345,848	10,612,930	99%
(2001)	Sumatra	218,699	20,557	49,915	23,104	93,034	8,859	414,168	0.8%
	Java	11,112,494	2,743,490	4,991,955	1,764,118	1,432,361	1,417,232	23,461,650	43.0%
	Bali-NTT	14,725,733	3,402,640	9,473,090	-	-	470,500	28,071,963	51.4%
	Kalimantan	23,389	-	6,047	-	1,031	-	30,467	0.1%
	Sulawesi	4,250	25	3,180	-	451	45	7,951	0.0%
	Maluku-Papua	741,575	84,341	1,766,046	-	10,800	-	2,602,762	4.8%
	Total	26,826,140	6,251,053	16,290,232	1,787,222	1,537,677	1,896,635	54,588,959	100%
(2002)	Sumatra	16,353	2,122	16,055	2,927	3,690	2,564	43,711	0.8%
	Java	1,437,306	1,526,966	752,873	72,862	736,589	173,809	4,700,405	85.6%
	Bali-NTT	-	-	-	-	-	-	0	0.0%
	Kalimantan	389,000	2,000	350,000	-	1,200	2,700	744,900	13.6%
	Sulawesi	2,808	-	667	-	-	-	3,475	0.1%
	Maluku-Papua	-	-	-	-	-	-	0	0.0%
	Total	1,845,467	1,531,088	1,119,595	75,789	741,479	179,073	5,492,491	100%

Source: National Fishery Statistics 2001, 2002 and 2004.

Table 3.2.9 Aquaculture Fish Production (Pond Culture) by Region

(unit: ton)

	Common Carp	Tawes	Tilapia	Nilem Carp	Catfishes	Gouramies	Total	
(1999)								
Sumatra	18,750	2,024	8,175	-	4,185	2,904	36,038	23.5%
Java	32,773	12,941	26,355	-	20,116	14,229	106,414	69.4%
Bali-NTT	699	158	593	-	219	279	1,948	1.3%
Kalimantan	832	146	501	-	27	26	1,532	1.0%
Sulawesi	3,828	237	1,288	-	167	372	5,892	3.8%
Maluku-Papua	396	127	643	-	277	5	1,448	0.9%
Total	57,278	15,633	37,555	-	24,991	17,815	153,272	100%
(2000)								
Sumatra	24,288	2,204	6,143	1,208	5,960	3,251	43,054	23.4%
Java	41,666	12,705	22,825	10,772	22,208	17,187	127,363	69.3%
Bali-Nusatenggara	841	192	105	-	135	309	1,582	0.9%
Kalimantan	1,252	39	517	-	217	25	2,050	1.1%
Sulawesi	6,877	276	855	77	191	379	8,655	4.7%
Maluku-Papua	398	126	297	-	280	5	1,106	0.6%
Total	75,322	15,542	30,742	12,057	28,991	21,156	183,810	100%
(2001)								
Sumatra	22,062	1,670	11,565	732	9,350	4,103	49,482	23.7%
Java	45,349	10,941	31,593	11,742	23,784	20,133	143,542	68.9%
Bali-NTT	389	137	1,092	-	367	173	2,158	1.0%
Kalimantan	826	46	442	-	111	36	1,461	0.7%
Sulawesi	7,451	330	1,635	80	244	513	10,253	4.9%
Maluku-Papua	389	126	649	-	280	5	1,449	0.7%
Total	76,475	13,250	47,003	12,554	34,136	24,963	208,381	100%
(2002)								
Sumatra	32,584	1,263	14,661	668	4,495	3,438	57,109	25.8%
Java	37,142	9,507	30,412	13,337	32,559	15,974	138,931	62.8%
Bali-NTT	1,293	116	1,100	-	308	142	2,959	1.3%
Kalimantan	945	4	773	-	153	117	1,992	0.9%
Sulawesi	10,700	238	3,887	43	201	431	15,500	7.0%
Maluku-Papua	1,221	150	774	1	335	2,207	4,688	2.1%
Total	83,885	11,278	51,660	14,049	38,051	22,309	221,232	100%

Source: National Fishery Statistics 2001, 2002 and 2004.

Table 4.4.1 Amount of Japanese ODA extended to Indonesia

(unit: hundred million yen)

Year	All Sector				Agriculture & Fishries				Fisheries			
	Total	Loan	Grant	Tech Coop.	Subtotal	Loan	Grant	Tech Coop.	Subtotal	Loan	Grant	Tech Coop.
1966	108.00	108.00	0.00	*1	0.00	-	-	*1	0.00	-	-	*1
1967	343.79	343.79	0.00	*1	0.00	-	-	*1	0.00	-	-	*1
1968	312.72	294.72	18.00	*1	18.00	-	18.00	*1	0.00	-	-	*1
1969	329.16	293.16	36.00	*1	36.00	-	36.00	*1	0.00	-	-	*1
Subtotal	**1,093.67**	**1,039.67**	**54.00**	**-**	**54.00**	**0.00**	**54.00**	**-**	**0.00**	**0.00**	**0.00**	**-**
Average	**273.42**	**259.92**	**13.50**	**-**	**13.50**	**-**	**13.50**	**-**	**-**	**-**	**-**	**-**
1970	396.00	360.00	36.00	*1	43.31	7.31	36.00	*1	4.05	4.05	-	*1
1971	769.26	733.26	36.00	*1	44.11	8.11	36.00	*1	0.00	-	-	*1
1972	664.84	639.20	25.64	*1	40.23	15.59	24.64	*1	13.79	13.79	-	*1
1973	1,456.60	1,427.76	28.84	*1	59.22	30.38	28.84	*1	14.64	10.44	4.20	*1
1974	600.00	600.00	0.00	*1	42.29	42.29	-	*1	0.00	-		*1
Subtotal	**3,886.70**	**3,760.22**	**126.48**	**-**	**229.16**	**103.68**	**125.48**	**-**	**32.48**	**28.28**	**4.20**	**-**
Average	**777.34**	**752.04**	**25.30**	**-**	**45.83**	**20.74**	**25.10**	**-**	**6.50**	**5.66**	**0.84**	**-**
1975	623.55	616.20	7.35	*1	7.03	-	7.03	*1	6.00	-	6.00	*1
1976	692.40	672.50	19.90	*1	25.95	8.35	17.60	*1	0.00	-	-	*1
1977	590.26	555.00	35.26	*1	130.86	98.00	32.86	*1	2.24	2.24	-	*1
1978	945.58	900.50	45.08	*1	168.06	136.28	31.78	*1	50.30	44.30	6.00	*1
1979	937.77	880.00	57.77	*1	169.44	143.17	26.27	*1	36.22	36.22	-	*1
Subtotal	**3,789.56**	**3,624.20**	**165.36**	**-**	**501.34**	**385.80**	**115.54**	**-**	**94.76**	**82.76**	**12.00**	**-**
Average	**757.91**	**724.84**	**33.07**	**-**	**100.27**	**77.16**	**23.11**	**-**	**18.95**	**16.55**	**2.40**	**-**
1980	753.80	712.30	41.50	*1	119.40	81.40	38.00	*1	0.00	-	-	*1
1981	644.08	580.00	64.08	*1	34.60	7.00	27.60	*1	0.00	-	-	*1
1982	676.35	631.70	44.65	*1	91.80	69.80	22.00	*1	0.00	-	-	*1
1983	755.62	675.00	80.62	*1	123.96	91.86	32.10	*1	0.00	-	-	*1
1984	797.27	716.00	81.27	*1	83.57	33.72	49.85	*1	3.72	3.72	-	*1
Subtotal	**3,627.12**	**3,315.00**	**312.12**	**-**	**453.33**	**283.78**	**169.55**	**-**	**3.72**	**3.72**	**0.00**	**-**
Average	**725.42**	**663.00**	**62.42**	**-**	**90.67**	**56.76**	**33.91**	**-**	**0.74**	**0.74**	**-**	**-**
1985	835.22	754.00	81.22	*1	132.61	69.51	63.10	*1	0.00	-	-	*1
1986	877.73	800.00	77.73	*1	50.22	13.92	36.30	*1	0.00	-	-	*1
1987	962.67	880.00	82.67	*1	76.92	30.27	46.65	*1	0.00	-	-	*1
1988	2,047.79	1,976.29	71.50	*1	102.83	67.49	35.34	*1	0.00	-	-	*1
1989	1,865.60	1,784.07	81.53	*1	495.59	473.15	22.44	*1	0.00	-	-	*1
Subtotal	**6,589.01**	**6,194.36**	**394.65**	**-**	**858.17**	**654.34**	**203.83**	**-**	**0.00**	**0.00**	**0.00**	**-**
Average	**1,317.80**	**1,238.87**	**78.93**	**-**	**171.63**	**130.87**	**40.77**	**-**	**0.00**	**-**	**-**	**-**
1990	1,898.91	1,815.82	83.09	*1	155.84	127.93	27.91	*1	0.00	-	-	*1
1991	1,813.10	1,612.46	96.87	103.77	57.28	30.45	26.83	*1	0.00	-	-	*1
1992	1,933.33	1,742.49	76.73	114.11	190.46	170.18	20.28	*1	0.00	-	-	*1
1993	1,759.89	1,580.40	76.03	103.46	130.03	114.03	16.00	*1	40.09	40.09	-	*1
1994	1,772.73	1,579.66	70.84	122.23	350.29	320.61	29.68	*1	0.00	-	-	*1
Subtotal	**9,177.96**	**8,330.83**	**403.56**	**443.57**	**883.90**	**763.20**	**120.70**	**91.70**	**40.09**	**40.09**	**0.00**	**-**
Average	**1,835.59**	**1,666.17**	**80.71**	**110.89**	**176.78**	**152.64**	**24.14**	**22.93**	**8.02**	**8.02**	**-**	**-**
1995	1,888.17	1,700.67	67.19	120.31	131.79	108.03	23.76	*1	1.94	1.94		*1
1996	2,087.06	1,900.50	71.17	115.39	233.26	196.65	36.61	*1	0.00	-	-	*1
1997	2,368.84	2,152.48	93.27	123.09	289.67	265.34	24.33	*1	0.00	-	-	*1
1998	2,622.91	2,304.80	208.84	109.27	610.95	500.00	110.95	*1	0.00	-	-	*1
1999	875.96	719.28	54.90	101.78	18.76	-	18.76	*1	0.00	-	-	*1
Subtotal	**9,842.94**	**8,777.73**	**495.37**	**569.84**	**1,284.43**	**1,070.02**	**214.41**	**94.69**	**1.94**	**1.94**	**0.00**	**-**
Average	**1,968.59**	**1,755.55**	**99.07**	**113.97**	**256.89**	**214.00**	**42.88**	**18.94**	**0.39**	**0.39**	**-**	**-**
2000	1,166.80	991.65	74.50	100.65	300.05	263.15	20.32	16.58	9.32	-	6.32	3.00
2001	2,548.78	2,362.93	72.63	113.22	445.09	417.31	12.00	15.78	4.66	-	-	4.66
Subtotal	**3,715.58**	**3,354.58**	**147.13**	**213.87**	**745.14**	**680.46**	**32.32**	**32.36**	**13.98**	**0.00**	**6.32**	**7.66**
Average	**1,857.79**	**1,677.29**	**73.57**	**106.94**	**372.57**	**340.23**	**16.16**	**16.18**	**6.99**	**-**	**3.16**	**3.83**
Total	**42,885.32**	**38,396.59**	**2,098.67**	**2,390.06**	**4,977.11**	**3,941.28**	**1,035.83**		**179.31**	**156.79**	**22.52**	

*1: No data available.

Total amount of Technical Cooperation from 1966 to 1990 is 1,162.67 hundred thousand yen.

Source: Japan's ODA Annual Report.

Table 4.5.1 List of On-going Projects of Asian Development Bank (ADB) (1/3)

Name of Projects (Executing Agency)	Approved Date/ Closing Date	Related Area	Description
Loan			
1. Integrated Pest Management for Smallholder Estate Crops (Directorate General of Estates in Ministry of Agriculture)	Sep. 26, 1996 Sep. 30, 2005	12 Provinces	Promotion of the adoption of cost-effective, environmentally-sound integrated pest management (IPM) practices by strengthening selected Government institutions and farmer groups, in order to (i) enhance and protect the environment, and (ii) improve product quality and increase the productivity and farm income of smallholder farmers.
2. Segara Anakan Conservation and Development (Ministry of Settlement and Regional Infrastructure, Ministry of Home Affairs)	Oct. 17, 1996 Sep. 30, 2004	Central/West Java	To conserve, develop and sustainable manage the Segara Anakan environs so as to ensure that economically and socially valuable ecosystems are protected for the benefit of current and future generations.
3. South Java Flood Control Sector Project (Ministry of Settlement and Regional Infrastructure, Directorate General of Reforestation and Land Rehabilitation in the Ministry of Forestry, and Directorate General of Regional Development in the Ministry of Home Affairs)	Nov. 07, 1996 Sep. 30, 2005	West/Central Java (south coast)	Assistance in improvement of the quality of life for populations in the project area.
4. Participatory Development of Agriculture Technology (Agency for Agricultural research and development)	Jul. 01, 1997 Sep. 30, 2005	Republic of Indonesia	To improve farm incomes and welfare and alleviate poverty in rural areas through the increased generation, transfer, and adoption of user-oriented agricultural technologies and management practices to support agribusiness development.
5. Coastal Community Development and Fisheries Resource Management Project (Ministry of Agriculture)	Nov. 04, 1997 Dec. 31, 2005	4 fishing sites	Assistance in promoting conservation and sustainable management of coastal fisheries resources; and reducing the extensive poverty in coastal areas by providing opportunities for increasing income and living standards of coastal communities.
6. Northern Sumatra Irrigated Agriculture Sector Project (Ministry of Settlement and Regional Infrastructure)	Nov. 13, 1997 Oct. 31, 2004	5 provinces in Sumatera	Assistance in improvement of farm productivity and incomes through the improvement of existing irrigated systems and smallholder agriculture

n.a.: no information available

Source; ADB website and ADB Indonesia resident mission, projects related to this sector are selected.

Table 4.5.1 List of On-going Projects of Asian Development Bank（ADB）(2/3)

Name of Projects	Approved Date/ Closing Date	Related Area	Description
7. Rural Income Generation (Agency for Agricultural Education and Training, and Bank Rakyat Indonesia)	Nov. 25, 1997 Sep. 30, 2005	12 Province	To develop a sustainable and participatory system to help the poor to improve their livelihoods and the well-being of their families, thereby achieving self-reliance above the poverty line.
8. Central Sulawesi Integrated Area Development and Conservation (Ministry of Home Affairs)	Jan. 27, 1998 Sep. 30, 2005	Central Sulawesi	Promotion of sustainable development in an ecologically sensitive area, i.e., encouraging environmentally sound social and economic development in tandem with protection of the biological wealth and ecological functions that makes it possible.
9. Community Empowerment for Rural Development (Ministry of Home Affairs)	Oct. 19, 2000 Jun. 30, 2007	11 Districts in 6 Provinces	Assistance to empower rural communities by strengthening their capacity to plan and manage their own development activities, and support investments, foster rural-urban linkages, and establish rural infrastructure to promote agricultural productivity and off-farm business enterprises.
10. Marine and Coastal Resources Management Project (Ministry of Marine Affairs and Fisheries)	Oct. 26, 2000 Jun. 30, 2007	Indonesia (Sumatera, Kalimantan, West Nusa tenggara and Sulawesi)	Assistance in sustainable management of marine and coastal resources and protection of the environment in a decentralized framework of government.
11.Poor Farmers Income Improvement Through Innovation (Agency for Agricultural Research and Development, Ministry of Agriculture)	August,15,2002 June, 30, 2008	Central Java, Central Sulawesi, East Nusa Tenggara and West Nusa Tenggara	To Enhance poor farmers' capacity to adopt innovative agriculture production and marketing methods by better targeting village-level public investment to location-specified needs, providing farmers with access to information, and reorienting the focus of agricultural research to the needs of marginal rainfed areas.
12. Coral Reef Rehabilitation and Management II (Ministry of Marine Affairs and Fisheries)	Dec 06, 2002 Dec 31, 2009	Riau, North/West Sumatera,	Assistance in rehabilitation and management of coral reefs in order to protect livelihoods of coastal communities as well as to conserve biodiversity.
13. Participatory Irrigation Sector Project (Directorate General of Water resources Development)	Dec, 19,2003 June, 30, 2011	n.a	To promote economic growth improving livelihood of rural people including poor and supporting good governance in water resources management

n.a: no information available

Source; ADB website and ADB Indonesia resident mission, projects related to this sector are selected.

Table 4.5.1 List of On-going Projects of Asian Development Bank（ADB）(3/3)

Name of Projects	Approved Date/ Closing Date	Related Area	Description
Technical Assistance			
16. Sustainable Management for Tree Crops Development	Dec,28,1999 -	n.a	n.a
17. Capacity Building for Decentralized Natural Resource Management	Oct,26,2000 -	n.a	n.a
18. Rural Microfinance (Ministry of Agriculture)	Dec,18,2001 -	North Sumatera, Lampung, Banten, Central Java and East Java	To provide an updated review of the rural microfinance sector, evaluate the performance of MFIs, assess the microfinancial requirements of the rural community, review the environmental problems, and prepare an investment project.
19. Agriculture and Rural Development Strategy Study (Ministry of Agriculture)	March,12,2002 -	n.a	To formulate a short- to medium-term operational agriculture and rural development strategy that can be used by the government to plan its interventions to promote agriculture and rural development in Indonesia
20. Community-Based Land Rehabilitation (Directorate General of Rural Community Empowerment)	Nov,5,2002 May,31,2003	n.a	To design and formulate, for external financing, a detail, comprehensive and sustainable project to reduce poverty through community-based land rehabilitation and management within selected region in Indonesia.
21. Sustainable Aquaculture for Poverty Reduction	July, 16, 2003 -	n.a	n.a
22. Productivity Enhancement for Tree Crops	Nov,21,2003 -	n.a	n.a

n.a: no information available

Source; ADB website and ADB Indonesia resident mission, projects related to this sector are selected.

Table 4.5.2 List of On-going Projects of the World Bank

Name of Projects (Executing Agency)	Approved Date/ Closing Date	Related Area	Description
1. Bengkulu Regional Development Project Convention on Biological Diversity Project (Bengkulu Province)	Mar. 3,1998 Aug. 31, 2004	Bengkulu	Assistance to alleviate poverty through rural development in Bengkulu, and to generate economic growth in rural areas of Bengkulu where growth potential is high.
2. Coral Reef Rehabilitation and Management Project (Indonesia Institute of Sciences, BAPPENAS)	Mar,31,1998 Jul,31,2004	Indonesia	To establish viable, operational, and institutionalized coral reef management systems in priority coral reef sites in Indonesia.
3. ID – Coral Reef Management Rehabilitation (Indonesia Institute of Sciences, BAPPENAS)	Mar,31,1998 Jul,31,2004	Indonesia	na
4. Water Resources Sector Adjustment Loan Project (BAPPENAS)	May 18,1999 Dec. 31,2004	Whole Country	Assistance to support a structural adjustment program of policy, institutional, regulatory, legal, and organizational reforms in the management of water resources and the irrigation sector.
5. Decentralized Agricultural and Forestry Extension Project (Ministry of Agriculture)	Aug. 31,1999 Dec. 31,2004	20 Districts in 10 Provinces	Assistance in enhancing farmers' capacity to participate in extension activities and in strengthening the capacity of the district-level integrated agricultural and forest extension system.
6. Second Water & Sanitation of Low Income Communities Project (Ministry of Helath – Directorate General CDC & EH)	Jun,15,2000 Jun,30,2009	Indonesia	To improve human productivity, and quality of life in under-served rural villages in Indonesia.
7. Kecamatan Development Project (02) (Ministry of Home Affairs)	Jun,26,2001 Dec,31,2006	Indonesia	Support participatory planning, and development management through a broad program of social, and economic infrastructure, and will also strengthen local formal, and informal institution, through greater inclusion, and accountability of basic development needs.
8. Forest and Media Project (Conservation International)	Oct,07,2002 -	Indonesia	n.a
9. Water Resources & irrigation Sector Management Program (Directorate General for Water Resources, KIMPRAWIL)	Jun,26,2003 Dec,31,2007	Indonesia	Assistance to sustainable and equitable management of a surface water resources, improvement of income of irrigation farm household and regional food security, and most cost-effective and fiscally sustainable management of related agencies.
10. Land Management Policy development Project (BPN, BAPPENAS, Ministry of Home Affairs)	Apr, 29,2004 Dec,31,2009	Indonesia	To contribute government programs in achieving poverty reduction, economic growth and promote full utilization of land resort sustainable manner
11. Coral Reef Rehabilitation and Management II (Government of Indonesia)	May, 25, 2004 -	Indonesia	Assistance to strengthen human resources development, support a local management of coral reefs and associated ecosystem, and empower all coastal communities and institutions to manage coral reefs and associated ecosystems.

n.a: no information available

Source: World Bank website, projects related to this sector are selected

Table 4.5.3 Measures and Actions Taken by Government of Indonesia and Donors Regarding Food Security (1/3)

GOI and Donors	Direction or Outline for Action	Measures and Actions	Source
Government of Indonesia (GOI)	- Guidelines of the State Policy1999-2004 (GBHN) - National Development Plan 2000 - 2004 (PROPENAS) - Policy of Agriculture (Renstra)	- Food security is based on the diversity of food resources, social institutions and local cultures as a part of the effort to ensure the availability of food and nutrients in adequate quantity and quality at affordable prices without disregarding the incomes and welfare of farmers and fishermen. - Food is the broad meaning including calories, protein, fats, vitamins and mineral. Food supply system involves institutions and industries from production to consumers via processing and distribution. - Development direction of agriculture and food is 1) improvement of productivity in the rural area focusing on the poor, 2) poverty alleviation, 3) increase of value added in agriculture and food through integration with other economic sector. - Food supply system would be constructed at the level of household, rural community, region, and national with integrated manner. - Ministry of Agriculture has been implementing the policy based on the grand strategy of agricultural development in the form of agribusiness system development in the rural.	- Item 14 of "B. Economy" in Chapter IV "Policy Direction" in the Guidelines of the State Policy (GBHN: Garil-Garil Besar Haluan Negara), No. IV/MPR/1999, October 1999. - Section 1.4 of "Development of Agriculture, Food and Irrigation" in Chapter IV "Economic Development", National Development Program (PROPENAS) 2000-2004, Appendix of PP No. 25 of 2000. - Agricultural Development Plan, Ministry of Agriculture, November 2001 - Agricultural Development Plan, Ministry of Agriculture (revised draft in August 2002).
Food and Agriculture Organization of the United Nations (FAO)	- The President of GOI requested FAO to support for formulation of National Program for Food Security (NPFS). - Technical cooperation is under preparation to formulation of NPSF for NFSC and Ministry of Agriculture for 1.5 to years from the 3rd Quarter of 2003.	- Focus of NPFS is on agriculture productivity, diversification of farmers economy, processing and marketing, income generation and dynamic rural economy, and improvement of nutrition. Food security at kabupaten level is taken into consideration through coordination at national level. - The rural development projects will implemented in about 100 priority kabupatens in 5 years as the first phase. Experience and lessens from SPFS presented below will be applied as the master approach. Finance will be arranged through existing and new projects from the donors through coordination and based on the GOI intension.	- Draft Aid Memoir – National Food Program for Food Security, May 2002.

Table 4.5.3 Measures and Actions Taken by Government of Indonesia and Donors Regarding Food Security (2/3)

GOI and Donors	Direction or Outline for Action	Measures and Actions	Source
Food and Agriculture Organization of the United Nations (FAO)	- FAO supports WATSAL through coordination relevant agencies. - Technical cooperation is under consideration to support Ministry of Agriculture for policy support.	- Special Program for Food Security has been implementation since 2001 in 5 provinces (about 20 villages) under the trust fund of GOJ (US$3.4 million for 5 years). The projects are mainly small scale rural development in different eco-system in order to construct food security model in village level.	- Interview to the Regional SPFS Officer (Special Program for Food Security), June 2002. - Seminar material for SPFS in May 2002.
International Fund for Agricultural Development (IFAD)	- IFAD has been supporting the poverty alleviation program under the Participatory Integrated Development in Rainfed Area (PIDRA) since 2001, in order to increase the community income and farm production in the frame of sustainable food security and to improve the quality of life of people under poverty line.	- PIDRA covers 500 villages located in 14 kabupaten of 3 provinces of East Java, NTB and NTT. - The program will be carried out during 8 years (2001 to 2009), divided into two phases, phase 1 (2001 to 2004) and phase 2 (2005 – 2008) after evaluation of phase 1. - Program component consists of 1) community and gender development (formation of 5,000 self-help groups), 2) agriculture and livestock development, 3) village infrastructure and land development, 4) institutional support and program management.	- Interview and information from the Agency for Food Security, Ministry of Agriculture.
World Food Program	- Review of circumstances factors surrounding food security in Indonesia for BAPPENAS. - Support for preparation of Food Insecurity Atlas with MOA, National Food Security Council - OPSM activities	- Holistic approach was recommended for formulation of food security policy including rural development and pricing policy, taking into account the context of food security defined in the World Food Summit in 1996. - Main aim is to identify the food insecure hot-spots with a view to draw early attention of policy and decision makers at the central, provincial, and district level and to enable them to develop appropriate remedial action plans - This program is to subsidized rice sales to poor persons together with Perum Bulog and local government. This program is to be integrated into the activities by Perum Bulog.	- Revised Draft on Food Security, Rural Development and Rice Policy: An Integrated Perspective, July 2001 - A Food Insecurity Atlas of Indonesia - WFP Indonesia: July 2004 – June 2007 Draft Programme Synopsis
World Bank	- No particular policy regarding food security alone. - Food security is practically included in the projects in the context of rural development.	- Projects under loan are implemented in kabupatens for the sectors of agriculture and irrigation (9 on-going projects and 1 new projects). Synergy effects are expected to support other sectors.	- Interview to Sector Coordinator for Rural Development and Operational Officer. - World Bank in Jakarta Website.
Asian Development Bank	- No particular policy regarding food	- Projects are implemented in selected kabupatens with the wide range for the sectors of agriculture, rural development and natural	- Interview to the Senior Sector Specialist,

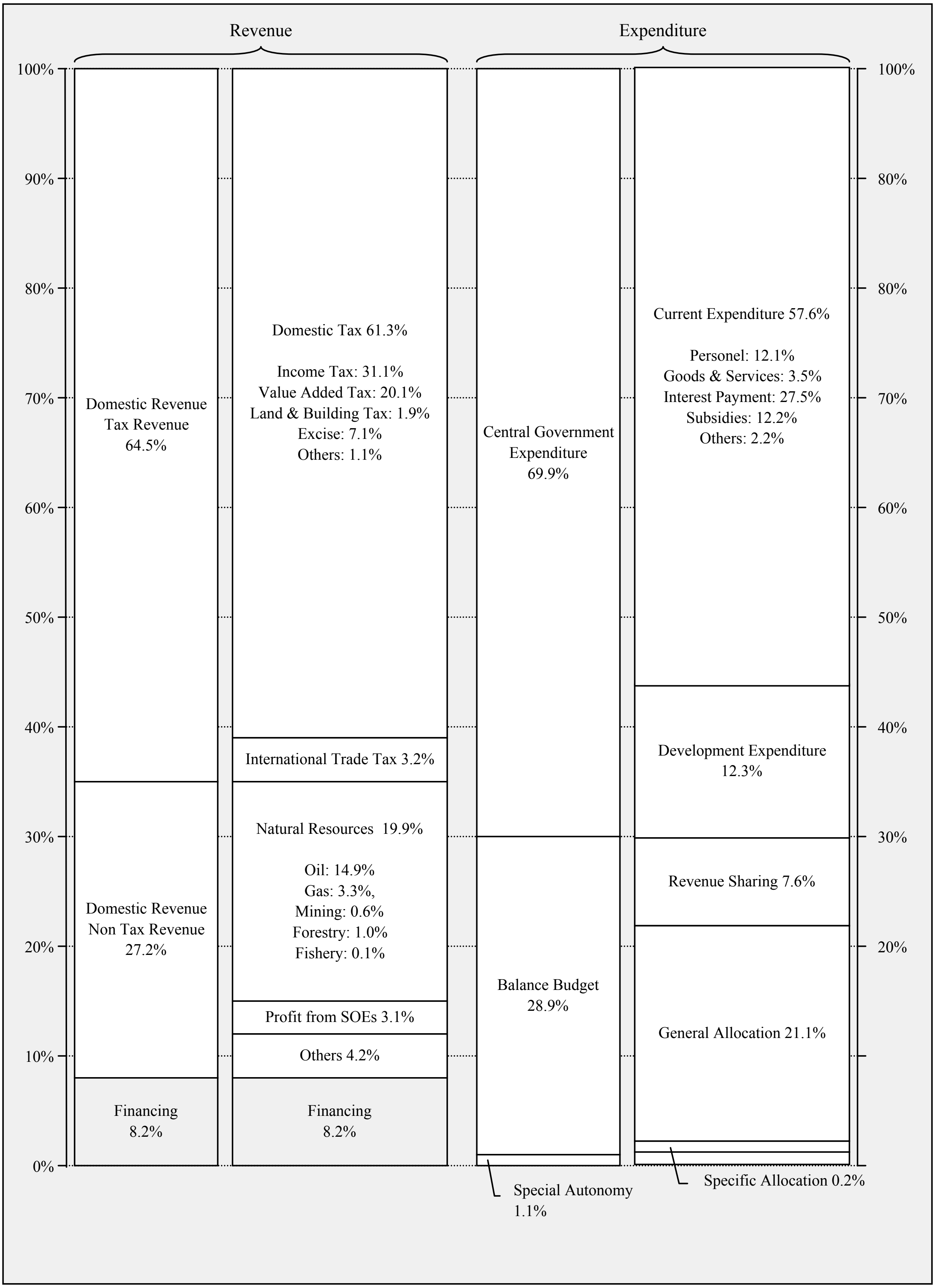
Table 4.5.3 Measures and Actions Taken by Government of Indonesia and Donors Regarding Food Security (3/3)

GOI and Donors	Direction or Outline for Action	Measures and Actions	Source
	security alone. - Food security is practically included in the projects in the context of rural development, poverty and environment.	resources management (14 on-going projects and 3 new projects under loan scheme, 3 projects under TA schme). Synergy effects are expected to support other sectors.	May and August 2002.
Asian Development Ban		- Support to Ministry of Agriculture is under preparation to formulate the development strategy of agriculture and rural development (scheduled from Aug. 02 to Mar. 03, but delayed). - Prioritization of implementation capacity is under process of analysis for all of 334 kabutatens.	- Technical Assistance to Indonesia for the Agriculture and Rural Development Strategy Study
USAID	- Support on formulation of food policy to provide analysis on various information until 2001 after the crisis. The support seems to be extended for 1.5 years. - Direct access to the poor.	- Since 1999, activities "Improved Food Security for the Vulnerable Groups" have been carried out for support to analyze of food policy (BAPPENAS/USAID/DAI Food Policy Support Activities). Direct access was made to the poor for support (US$3.0 million per annum). - In 2002, activities entitled as "Impact of Conflicts and Crises Reduced" are scheduled to improve food security of the poverty and to monitor its progress by BGO (US$4.2 million). - Food Policy consist of 1) farm income, 2) access of consumers to food, 3) the poor linked into rapid economic growth, under the global market economy. Policy analysis is conducted to create a dynamic rural economy to integrating these three components - Policy analysis indicates the direction to diversify agriculture and restructure rural economy with minimum public cost and low risk, through studies on available measures for poverty alleviation, food diversification and rural food security by utilizing advantage of low international rice price. - Activities in 2003 included food balance projection, focusing on starch basis. This activities was completed in 2004	- FY2001 Program Description and Annual Report FY2002. - Website of macro food policy - An Approach to Macro Food Policy, BAPPENAS/ USAID/ DAI Food Policy Activities, March 2001 - Rice Production and Marketing: A Report from Five Kabupatens, CASER and BAPPENAS/ USAID/ DAI Food Policy Activities, March 2001
United Nations Development Program (UNDP)	- Publishing "Human Development Report, 2001" in collaboration with Central Bureau of Statistics (BPS).	- The report presents various indicators of human development, particularly regarding poverty by Kabupaten.	- Indonesia Human Development Report 2001, BPS/ BAPPENAS/ UNDP, October 2001

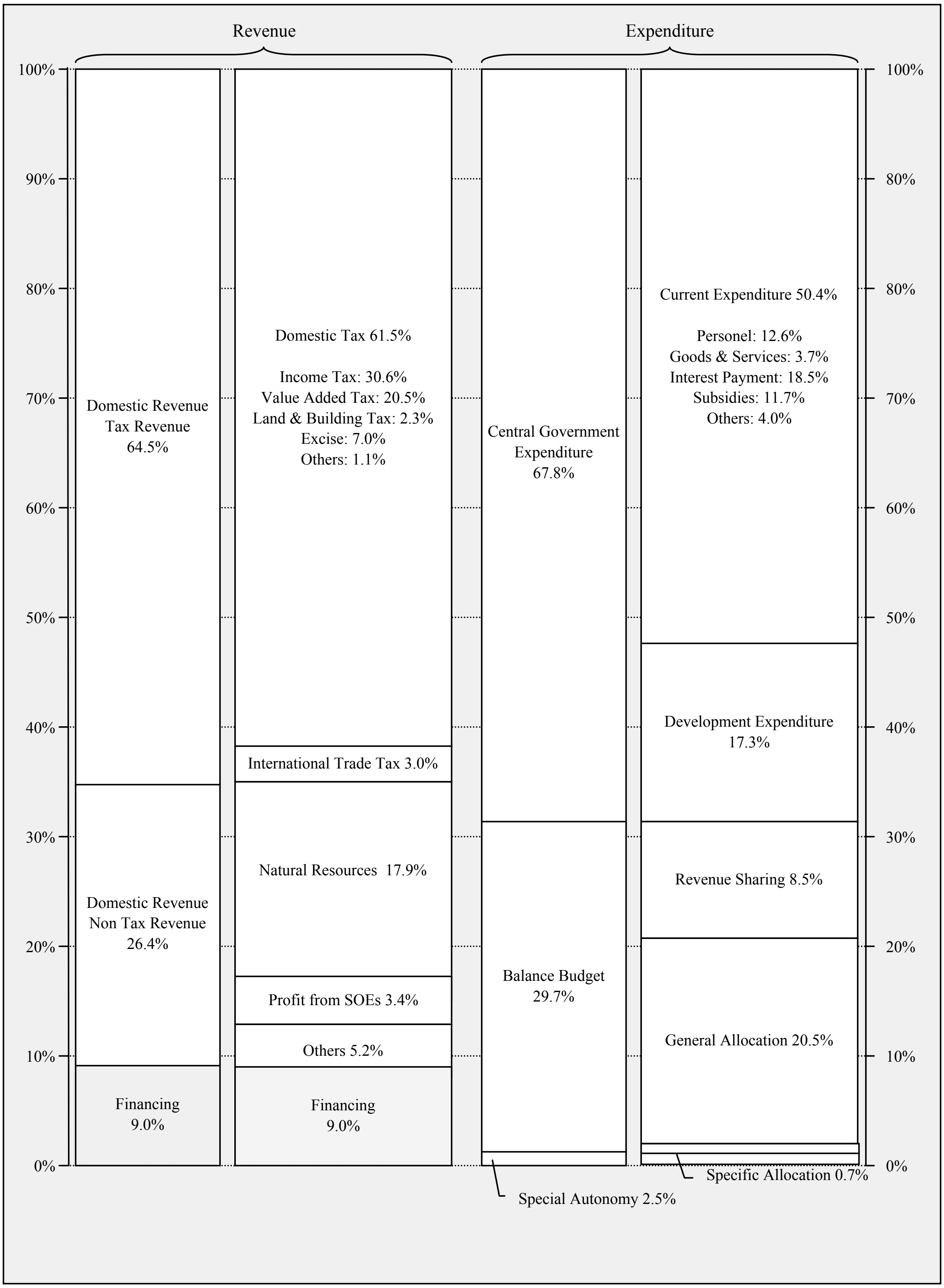
Table 5.1 Development Issues, Cooperation Programs and Cooperation Components

Development Issue	Cooperation Program	Cooperation Component
I. Stable Food Supply and Improvement of Nutrition	1. **Improving the Institution and Production Support System of Agriculture and Fisheries**	1-1 Support for policy and institutional system in line with the decentralization policy 1-2 Development of livestock industry utilizing local resources
	2. **Improving the Function of the Agricultural Infrastructure and Sustainable Operation & Maintenance**	2-1 Support for participation of WUA in irrigation O&M and rehabilitation 2-2 Strengthening of WUAs and local governments for the above-mentioned purpose 2-3 Rehabilitation of existing facilities and development of small scale irrigation for the above-mentioned purpose
	3 **Sustainable Utilization of Fishery Resources**	3-1 Cooperation in establishing the resource management scheme for the sustainable development of the fisheries and fisheries communities 3-2 Promotion of coastal and inland capture fishery and fish culture for expansion of local consumption of fishery products at low prices
II. Raising the Income of Farmers & Fishermen and the Vitalization of Rural Economy	4. **Promoting Community-based Economic Activities in Agriculture and Fisheries**	4-1 Encouragement of local processing industries for agriculture and fishery products - Recommendation for institutional framework for creation of incentives for investments - Recommendation for information system - Encouragement and strengthening of farmers' and fishermen's organizations to promote the local processing industries for agricultural and fishery products - Improvement of necessary infrastructures such as small-scale facilities for the above-mentioned purpose 4-2 Support for income generation by poor people: promotion of micro credit schemes and recommendation and support for promoting and strengthening mutual-help organizations for farmers and fishermen
	5. **Improving and Strengthening Markets for Agriculture and Fishery Products**	5-1 Recommendation on the improvement of market institutions 5-2 Recommendation on the establishment of basic market information systems

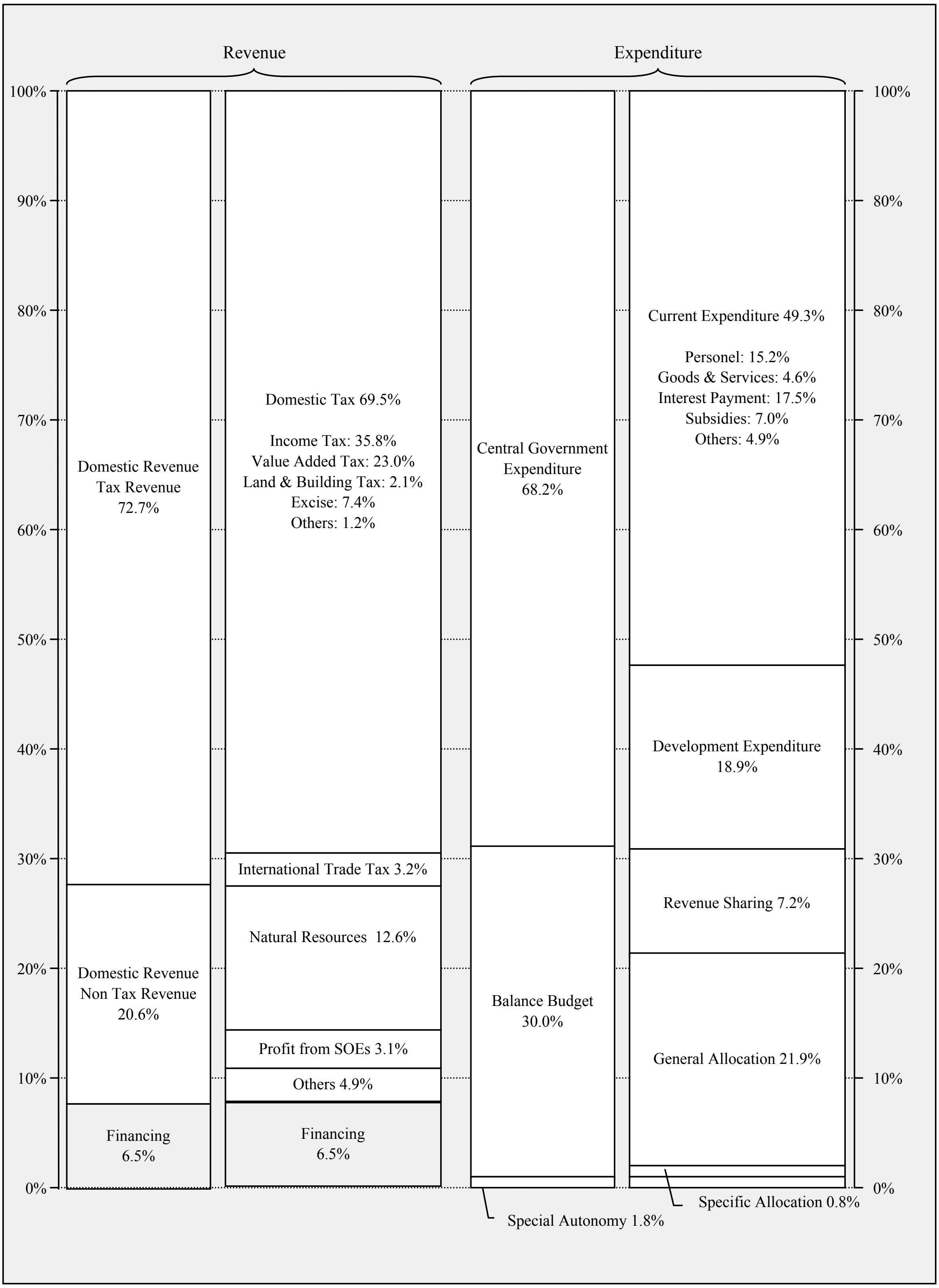
Figures



The Support Program for Agriculture and Fisheries Development in The Republic of Indonesia	Fig. 2.1 Realization of State Revenue and Expenditure (APBN 2002)
Japan International Cooperation Agency (JICA)	



The Support Program for Agriculture and Fisheries Development in The Republic of Indonesia	Fig. 2.2 Realization of State Revenue and Expenditure (APBN 2004)
Japan International Cooperation Agency (JICA)	



The Support Program for Agriculture and Fisheries Development in The Republic of Indonesia	Fig. 2.3 Approved State Revenue and Expenditure (APBN 2004)
Japan International Cooperation Agency (JICA)	

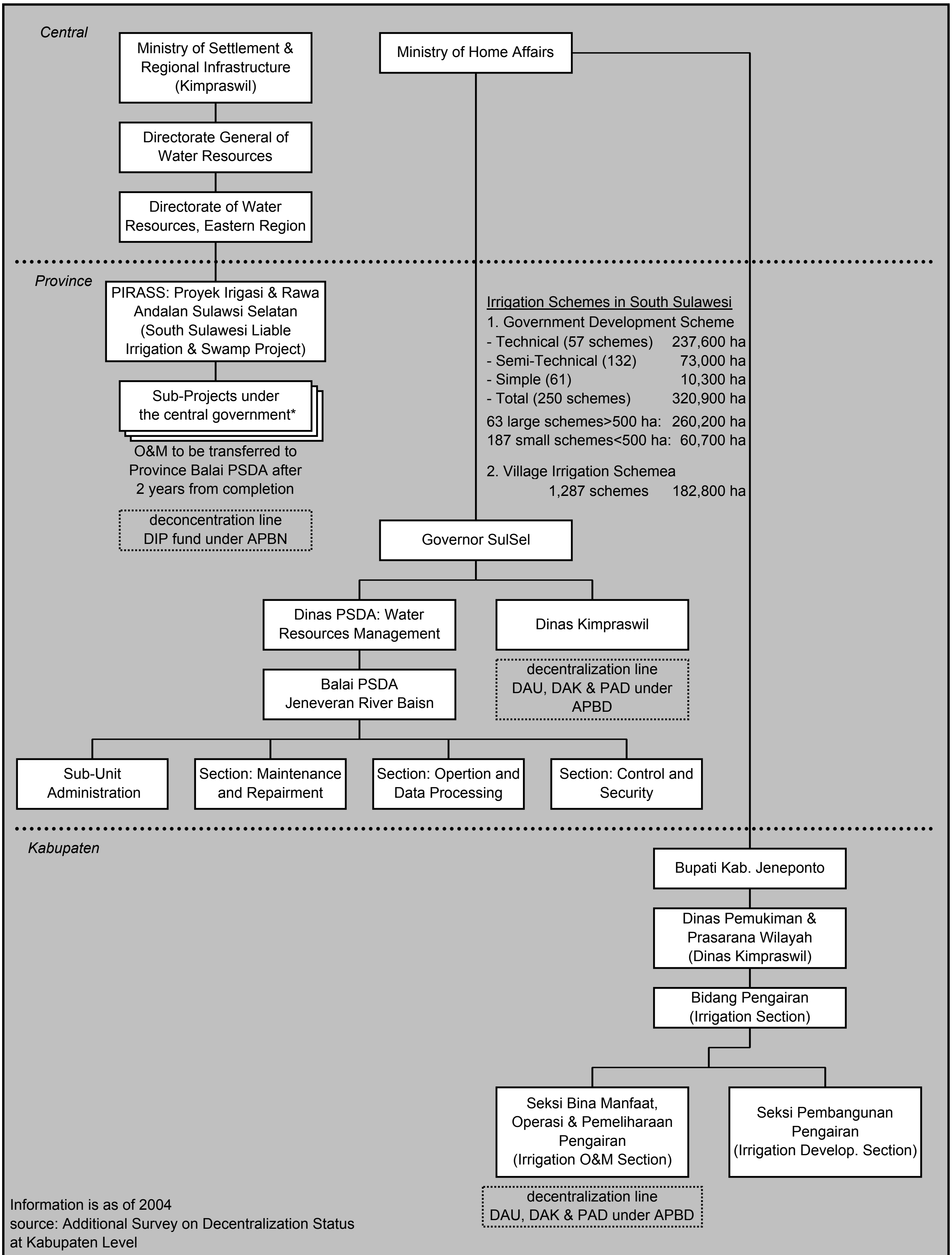


Figure 2.4.1 Organizational Structure of Irrigation O&M in Kabupaten Jeneponto

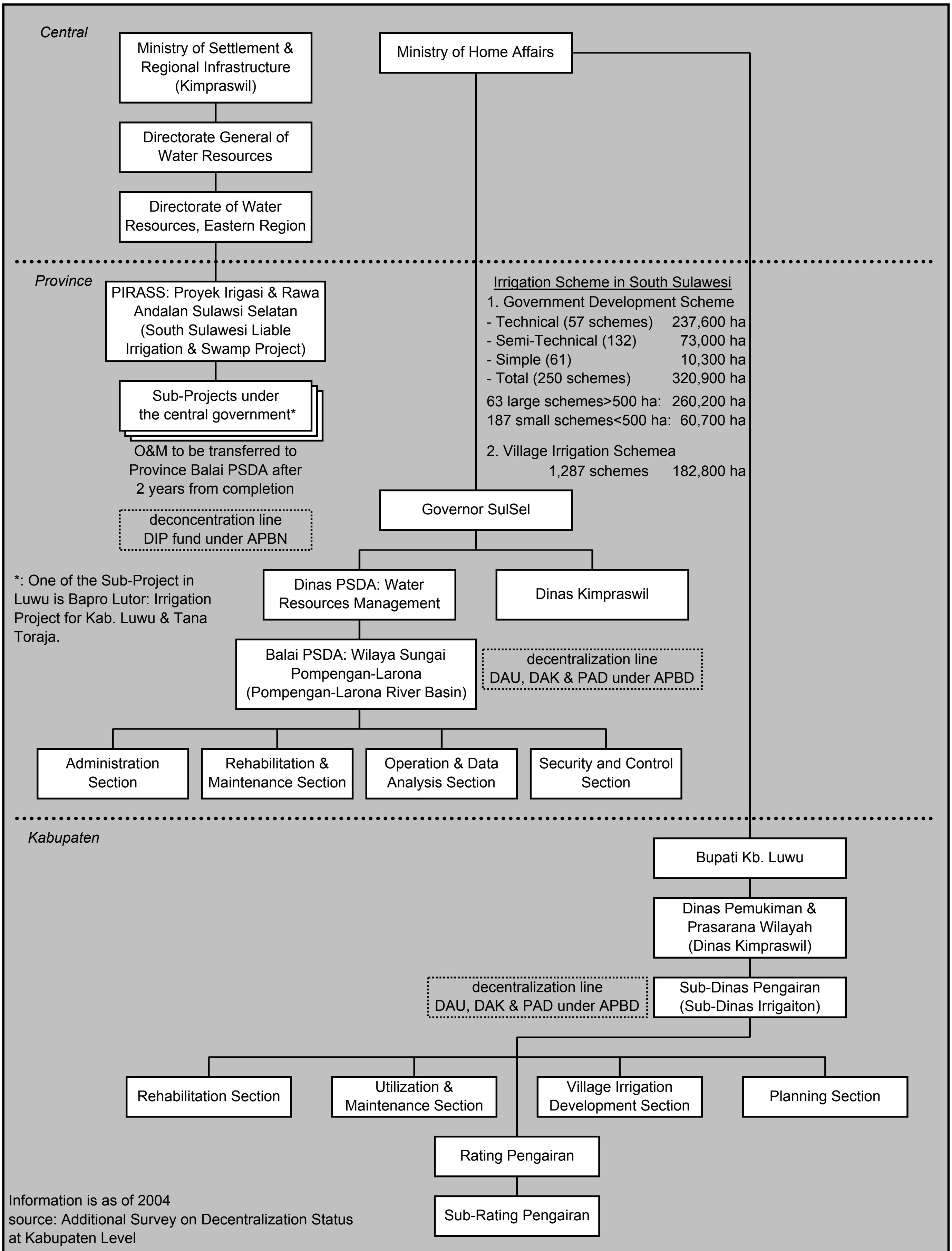


Figure 2.4.2 Organizational Structure of Irrigation O&M in Kabupaten Luwu

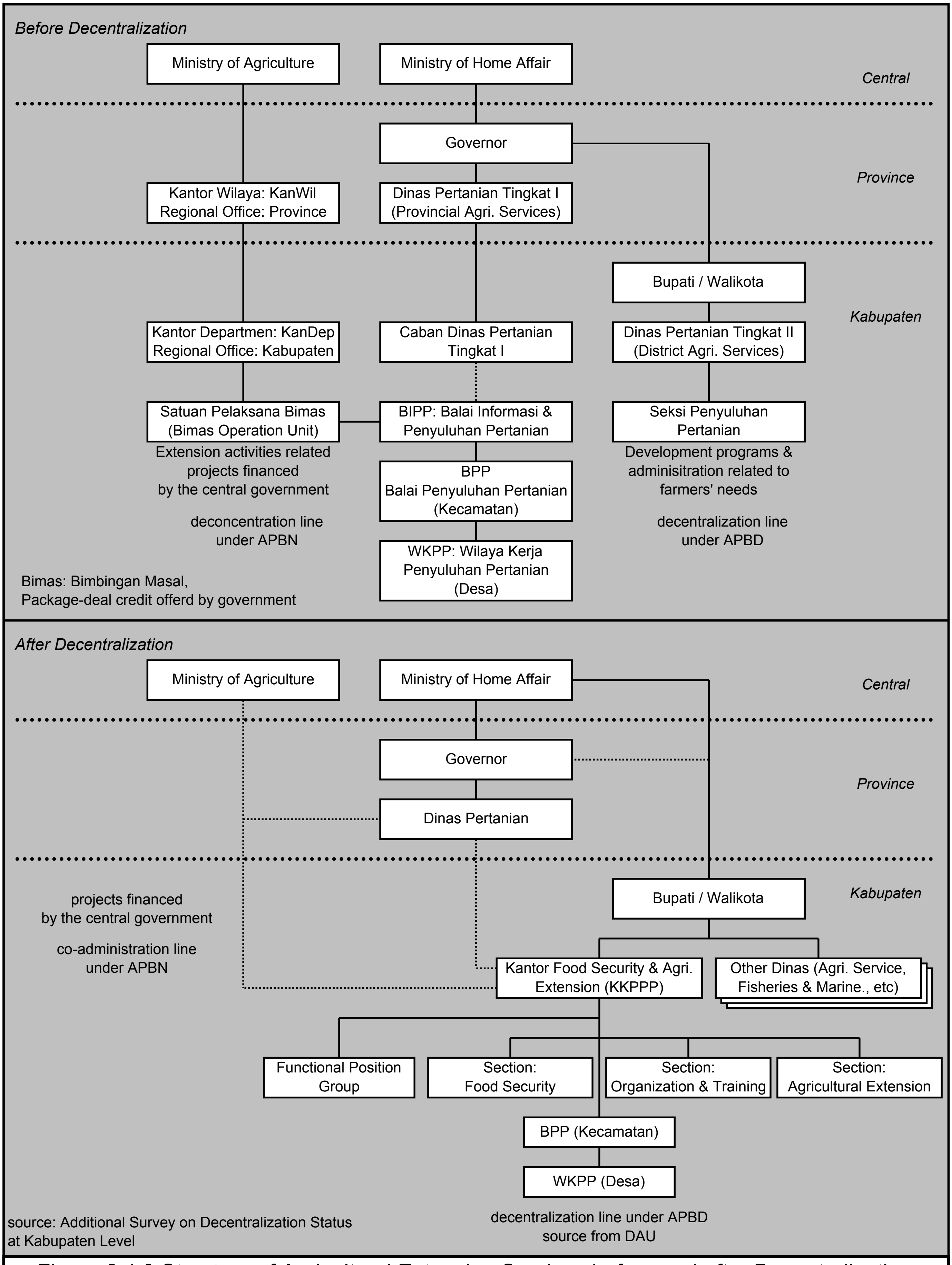


Figure 2.4.3 Structure of Agricultural Extension Services before and after Decentralization (Kab. Jenepont)

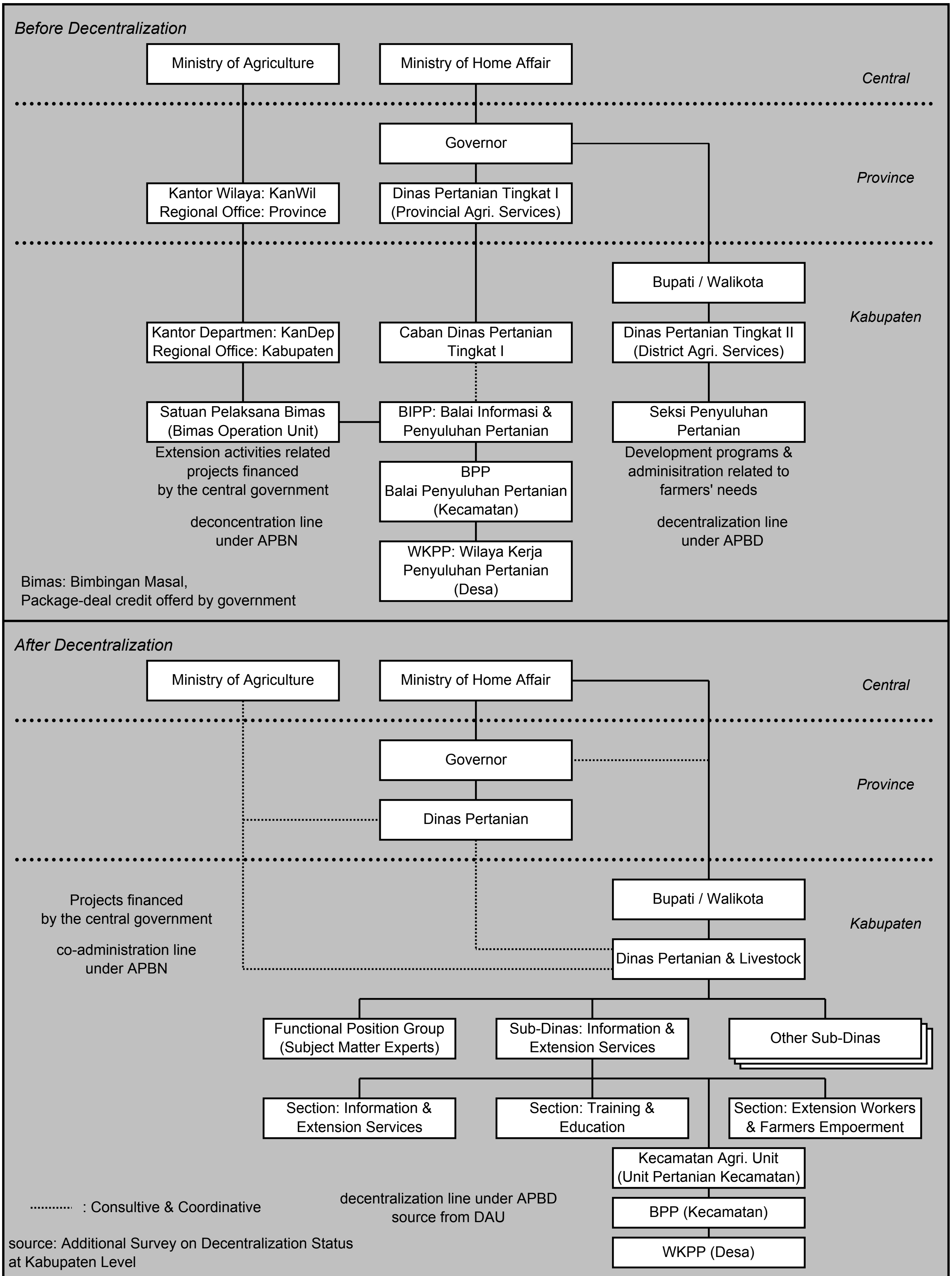
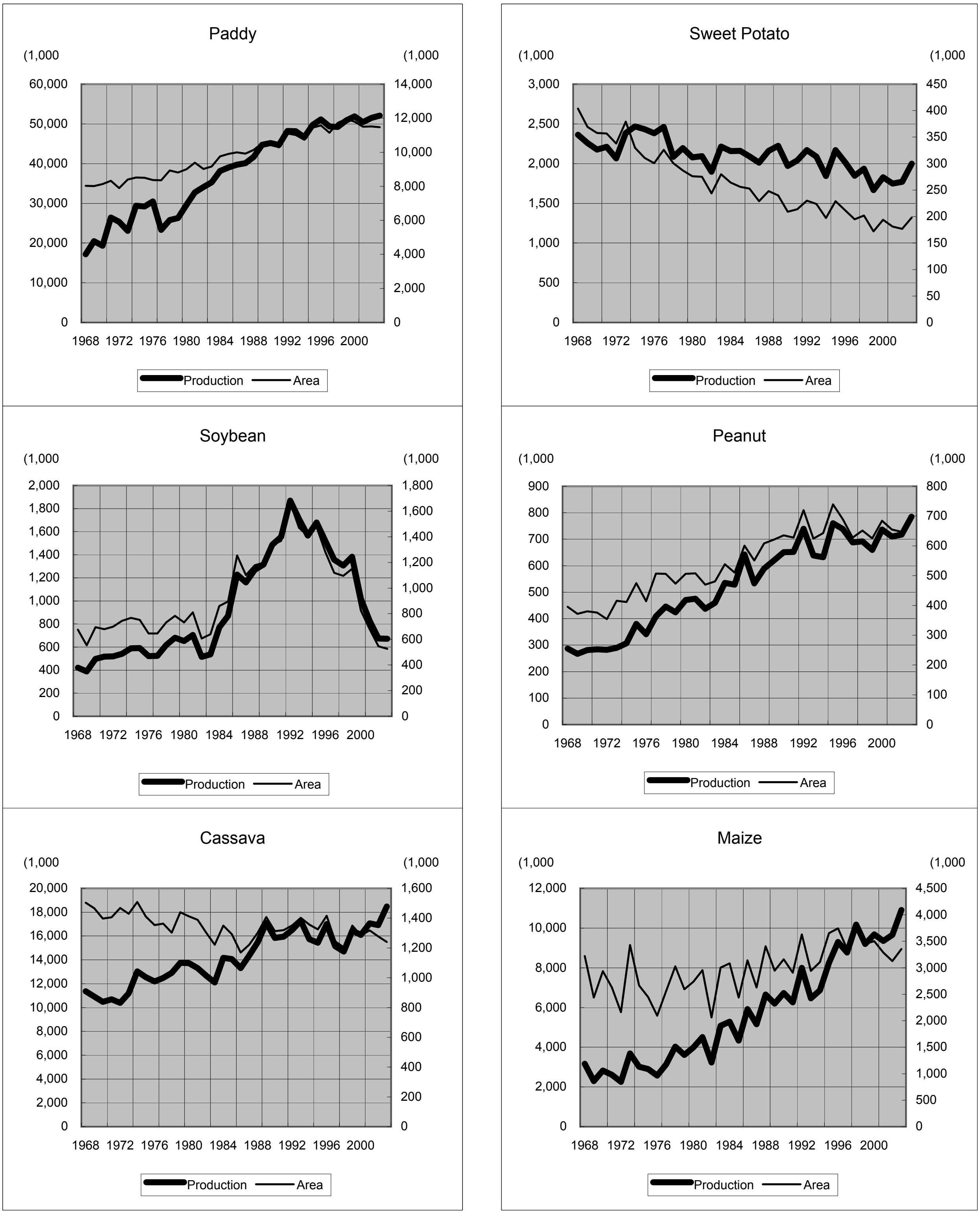
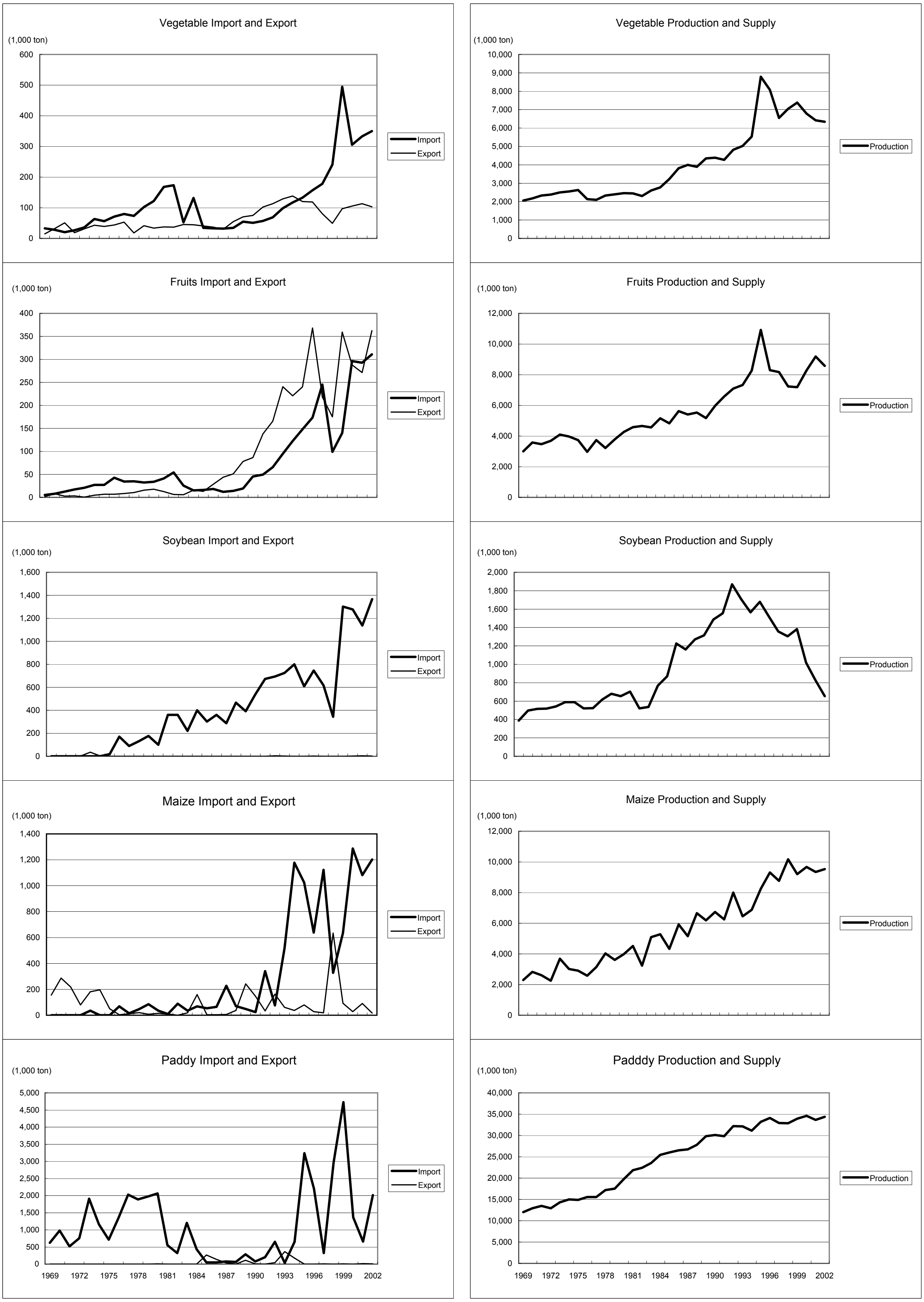


Figure 2.4.4 Structure of Agricultural Extension Services before and after Decentralization (Kab. Luwu)



Source: Table 3.1.6 of this report

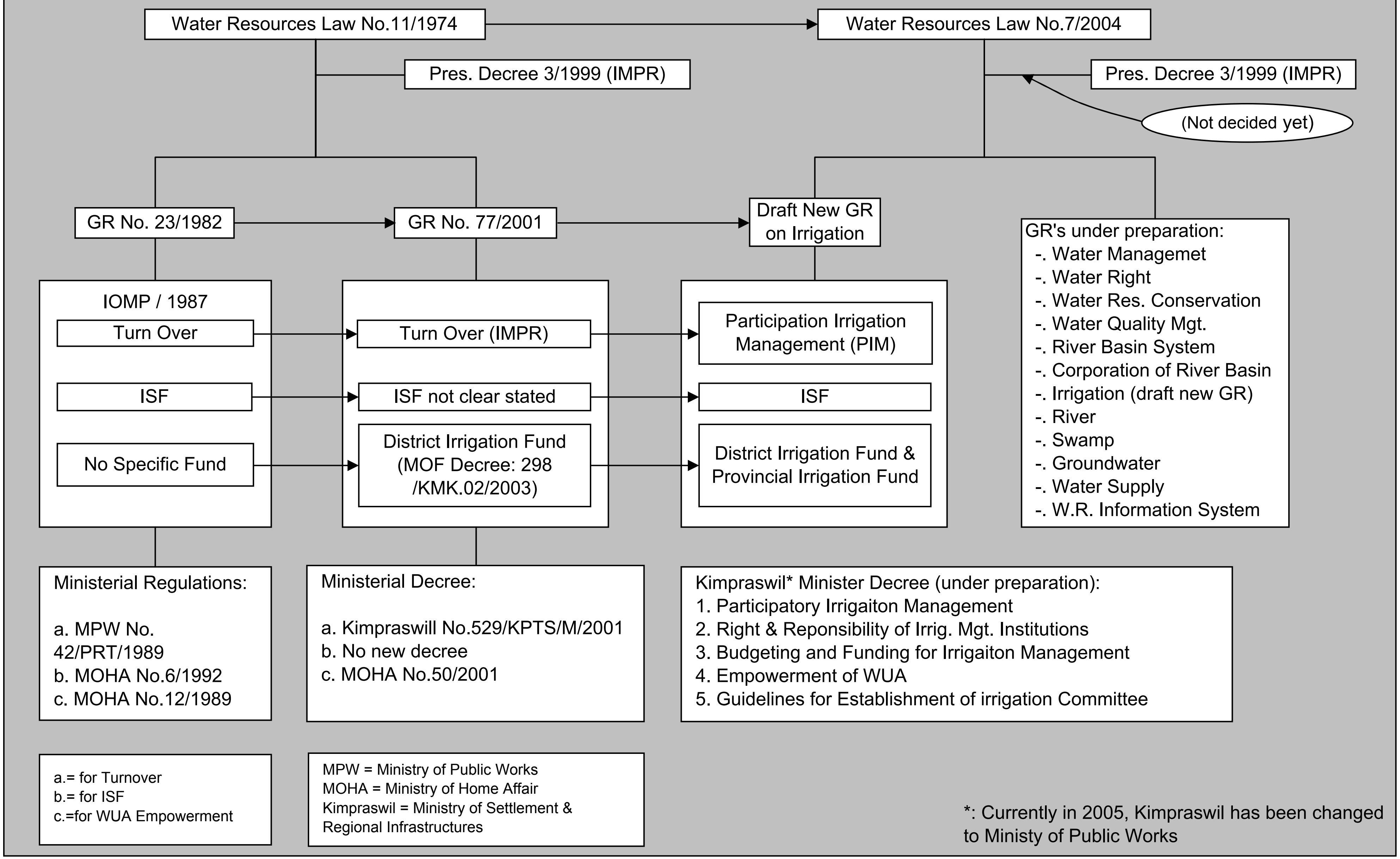
The Support Program for Agriculture and Fisheries Development in The Republic of Indonesia	Figure 3.1.1 Transition of Harvested Area and Production of Major Food Crops
Japan International Cooperation Agency (JICA)	

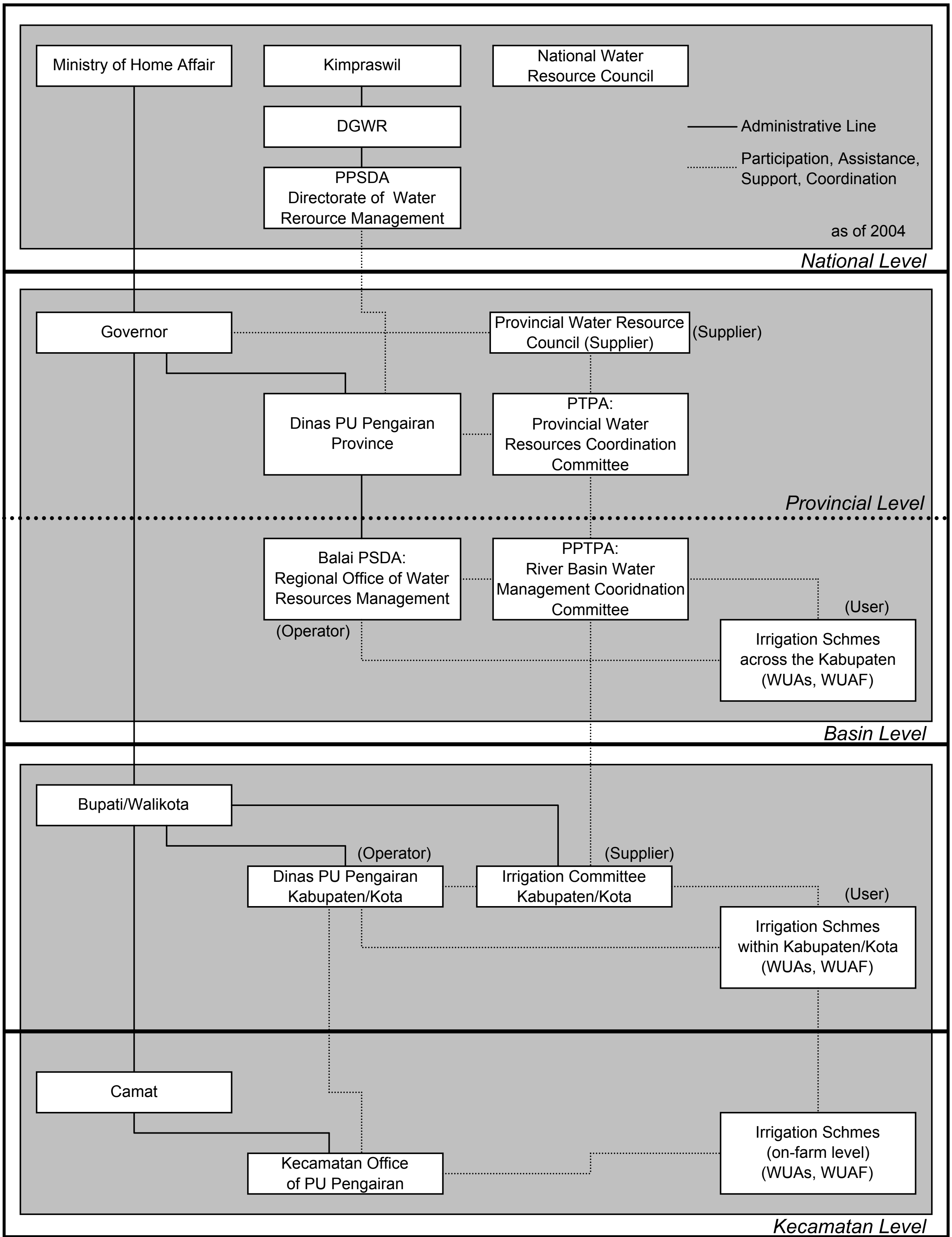


Source: Table 3.1.8 of this report

The Support Program for Agriculture and Fisheries Development in The Republic of Indonesia	Figure 3.1.2 Transition of Production and Traded Quantities of Major Agricultural Activities
Japan International Cooperation Agency (JICA)	

Figure 3.1.3 Schematic Flow of Policy Changes in Irrigation Management

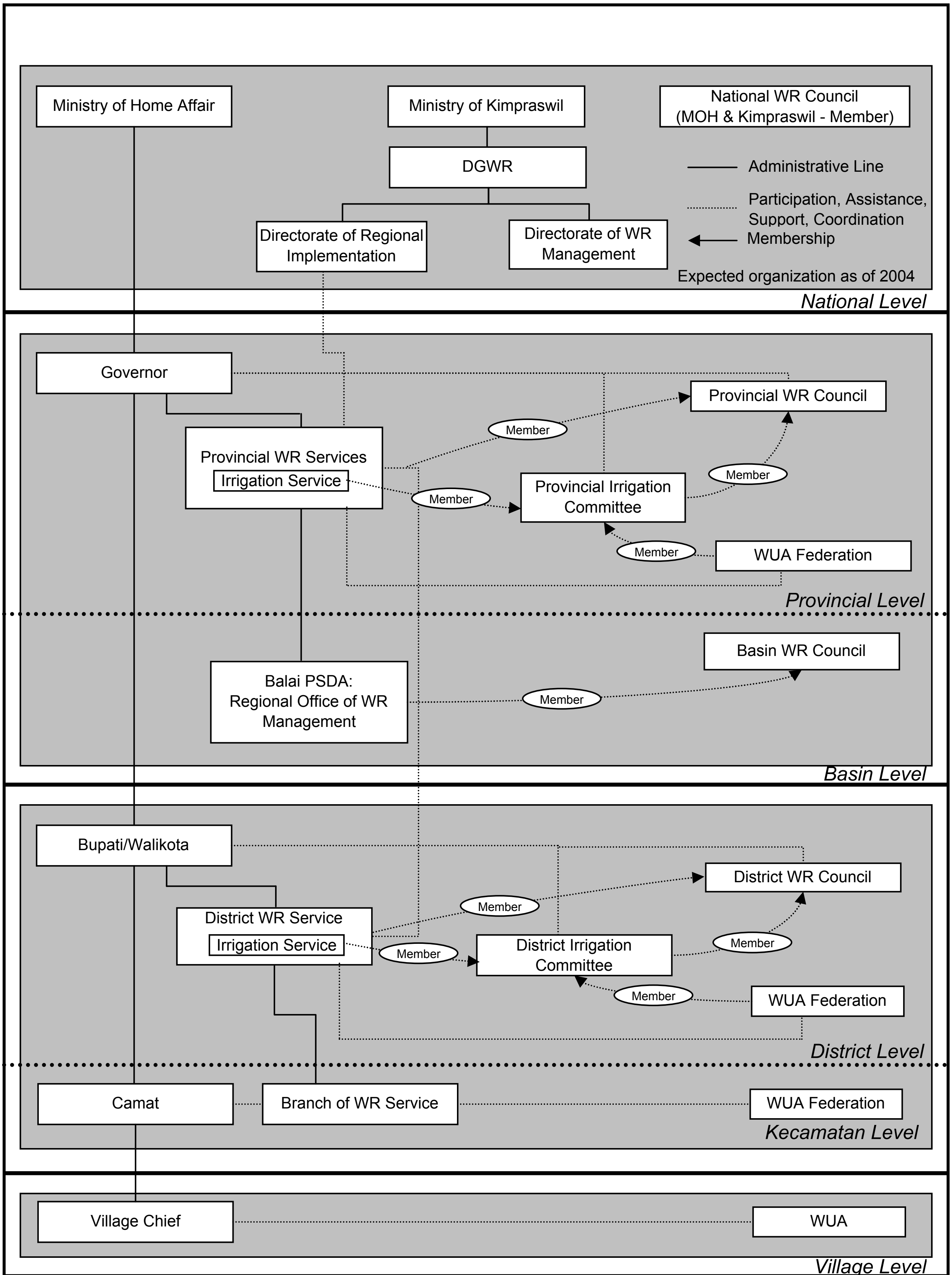




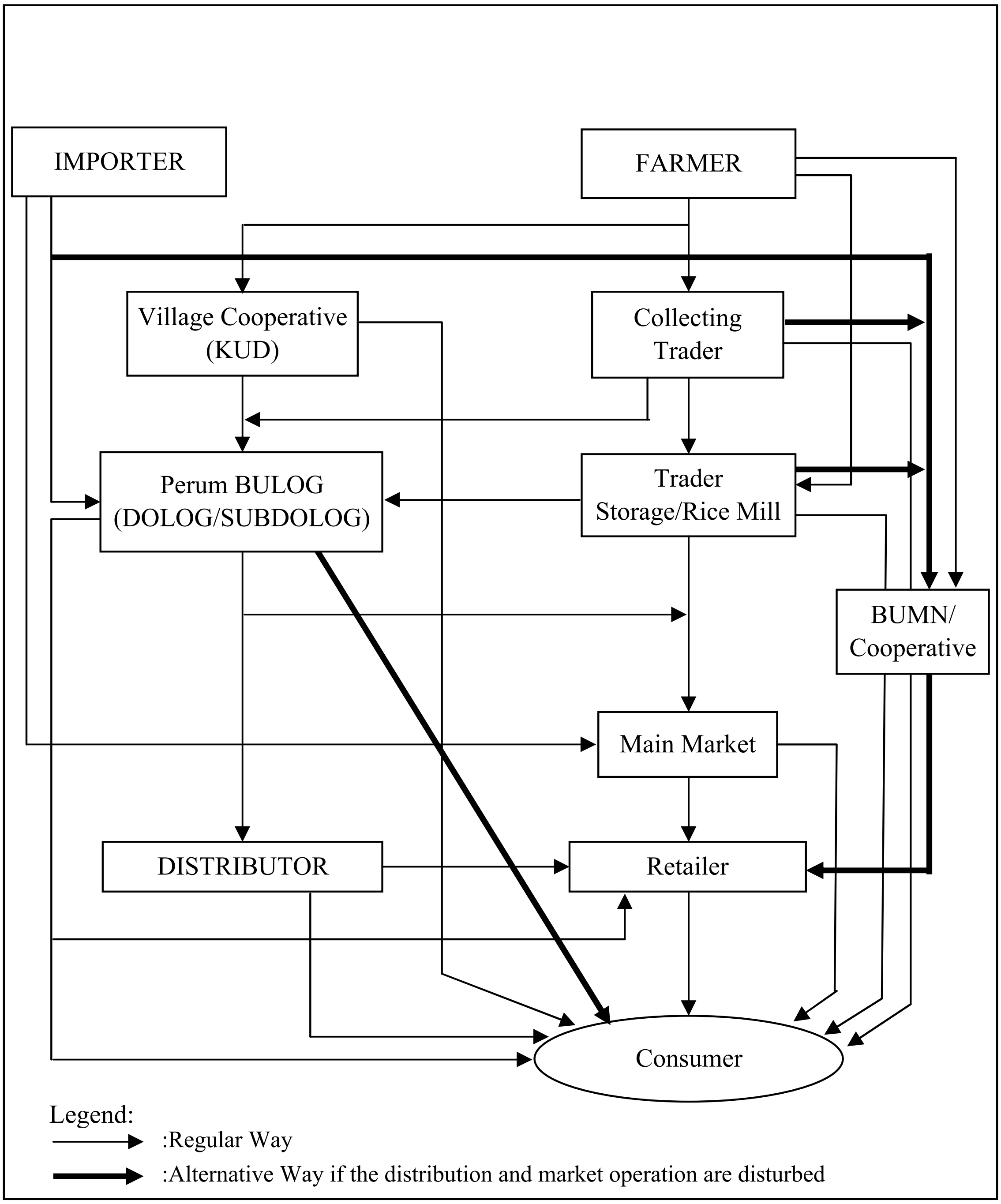
The Support Program for Agriculture and Fisheries Development in The Republic of Indonesia

Japan International Cooperation Agency (JICA)

Figure 3.1.4 Typical Outline of Existing Organization for Irrigation Management



The Support Program for Agriculture and Fisheries Development in The Republic of Indonesia	Figure 3.1.5 Typical Outline of Expected Organization for Irrigation Management
Japan International Cooperation Agency (JICA)	



Source:
General Guidance on Monitoring of Food Availability & Distribution in facing religion special (holy) days & national special days, 2004/2005, Ministry of Agriculture, issued in May 2004 and Study Team

The Support Program for Agriculture and Fisheries Development in The Republic of Indonesia	Figure 3.1.6 Rice Distribution System
Japan International Cooperation Agency (JICA)	

	The first umbrella cooperation for integrated agriculture and rural development (1981 to 1985)
	The second umbrella cooperation for integrated agricultural and rural development (1986 to 1990)
	(Sector assistance strategy formulation study on umbrella cooperation for integrated agricultural and rural development project)
DS	The study on formulation of umbrella cooperation for integrated agricultural and rural development project
	The third umbrella cooperation for integrated agricultural and rural development (1990 to 2000)

	Project-type Technology Cooperation (Technical Cooperation Project)			from	to
1	The agricultural technical cooperation project in West Java	Agriculture		Aug 67	Nov 74
2	East Java Maize Project	Agriculture		Dec 67	Jul 74
3	Tajihea Tani Makmur Pilot Project in West Java	Agriculture		May 68	May 76
4	Fishery technical cooperation project	Fishery		Jul 69	Jul 72
5	Agriculture research project	Agriculture	Research	Oct 70	Oct 85
6	Pilot scheme of Tadjum irrigation project	Agriculture		Feb 71	Feb 76
7	Lampung irrigation development project	Agriculture		Nov 72	Nov 82
8	Sericultural development project in Indonesia	Agriculture	Sericulture	Mar 76	Feb 85
9	Shallow maritime culture development project	Fishery		Aug 78	Mar 86
10	South Sulawesi regional agricultural development planning	Agriculture	Rural	May 76	Jun 82
11	Agricultural Product Processing Pilot Plant, Bogor Agricultural University	Processing	Education	Oct 77	Oct 84
12	Animal health improvement project	Stockbreeding		Jul 77	Jul 84
13	Java mountain area havesting technology project	Agriculture		Dec 77	Jun 82
14	Remote sensing engineering project for development of agricultural infrastructure	Agriculture		Apr 80	Mar 87
15	Leading engineer training project	Agriculture		Mar 79	Mar 88
16	Irrigation Engineering Service Center Project	Irrigation		Apr 81	Mar 88
17	The food crop protection project	Agriculture		Jun 80	Mar 87
18	Veterinary drug certification project	Stockbreeding		Apr 84	Mar 91
19	Agricultural research strengthening project	Agriculture	Research	Apr 86	Mar 91
20	The strengthening of artifial insemination center project	Stockbreeding		Apr 86	Mar 95
21	Applied agricultural machinery technology development project	Agriculture		Apr 87	Jul 93
22	The food crop protection project (Phase 2)	Agriculture		Apr 87	Mar 92
23	The Academic development of the graduate program at the faculty of agricultural engineering and technology	Agriculture	Research	Apr 88	Mar 93
24	The Academic development of the graduate program at the faculty of agricultural engineering and technology (A/C)	Agriculture	Research	Apr 88	Mar 93
25	The remote sensing engineering project phase 2 for the development of agricultural infrastructure	Agriculture		Jun 88	Jun 94
26	The Aftercare Technical Cooperation for the Integrated Agr. & Rural Development Project in Southeast Sulawesi Province	Rural		Jul 88	Jul 93
27	Shrimp culture project	Fishery		Oct 88	Oct 93
28	Seed potato multiplication and training project	Agriculture		Oct 92	Sep 97
29	The research & development for Multi-species Hatchery Project	Fishery		Apr 94	Apr 99
30	Irrigation Engineering Service Center Project	Irrigation		Jun 94	Jun 99
31	The Agricultural Statistics Technology Improvement & Training Project in the Republic of Indonesia	Agriculture	Statistics	Oct 94	Sep 98
32	The quality Soybean Seed Multiplication and Training Project	Agriculture		Jul 96	Jun 01
33	Agricultural research strengthening project (A/C)	Agriculture	Research	Dec 96	Dec 98
34	Dairy Technology Improvement Project in Indonesia	Stockbreeding		Mar 97	Mar 02
35	Project of the center for development of appropriate agricultural engineering technology (A/C)	Agriculture		Apr 97	Mar 99
36	The Agricultural Statistics Technology Improvement & Training Project (F/U)	Agriculture	Statistics	Oct 98	Sep 01
37	Development of High Quality Seed Potato Multiplication System Project	Agriculture		Oct 98	Sep 03
38	The Research & Development for Multi-species Hatchery Project	Fishery		Apr 99	Mar 01
39	The follow-up technical cooperation for the Irrigation Engineering Service Center Project	Irrigation		Jun 99	Jun 01
40	Project for Improvement of Agricultural Extension and Training System	Agriculture		Sep 99	Mar 02
41	The strengthening of artifial insemination center project (A/C)	Livestock		Jul 00	Jul 02
42	The Aftercare Technical Cooperation for the Integrated Agricultural & Rural Development Project in Southeast Sulawesi Province	Rural		Oct 00	Mar 02
43	Freshwater Aquaculture Development Project in Indonesia	Fishery		Aug 00	Aug 05
44	Project on Strengthening Sulawesi Rural Community Development to Support Poverty Alleviation Programmes	Rural		Mar 97	Feb 02
45	Project for Training of Agricultural Extension Officers on Improvement of Farm Management	Agriculture		Jan 04	Jan 07
46	Project for Empowerment Water Users Associations	Irrigation		Apr 04	Apr 07
47	Project for Dissemination of Appropriate Dairy Technology Utilizing Local Resources	Livestock		Jul 04	Jun 07
48	Project for Dissemination of Sustainable mariculture Technology	Fishery		Feb 05	Feb 08
49	Institutional Support for Food Security	Agriculture		Mar 05	Mar 08

	Grand aid			(hundred million yen)
	Food aid (KR)			259.09
	Grnat aid for Increased food production (2KR) up to FY03			440.50
	General Project grant aid (E/N base)			348.59
1	A fishery trianing ship and a fishery training center	Fishery	FY73	4.20
2	A fishery trianing ship and a fishery training equipments	Fishery	FY75	6.00
3	Central agricultural research institute	Agriculture	FY75	1.03
4	The irrigation facility of mulberry fram of sericulture center	Agriculture	FY76	1.00
5	The local extension center for agricultural extension strengthening in Lampung State	Agriculture	FY76	1.20
6	Livestock health research center project	Livestock	FY77	6.00
7	Fishery investigation ship	Fishery	FY78	6.00
8	Construction guidance service center in irrigation & drainage engineering	Irrigation	FY80	15.00
9	Leading agricultural engineer training center	Agriculture	FY80	4.00

Figure 4.4.1 Japan's Major Cooperation Projects for the Agriculture and Fisheries Sector in Indonesia 1967 - 2005 (1/3)

Grand aid			(100 x10⁶ yen)
10 On-farm irrigation facilities	Irrigation	FY81	7.60
11 Veterinary assay laboratory establishment project	Livestock	FY83	9.60
12 Research equipments at Bogor Agriculture Institute	Agriculture	FY83	0.50
13 Construction project for the development of the graduate program at the Faculty of Agr. Engineering & Technology, Institute Pertanian Bogor	Agriculture	FY84	23.40
14 The rice pest and disease forecasting and control project	Agriculture	FY84	4.45
15 Basic design study report on the establishments project of the center for development of appropriate agricultural engineering technology	Agriculture	FY85	17.49
16 The rice pest and disease forecasting and control project (Phase 1)	Agriculture	FY85	20.61
17 The rice pest and disease forecasting and control project	Agriculture	FY86	12.30
18 The rice pest and disease forecasting and control project	Agriculture	FY87	19.78
19 The construction project of facilities for strengthening of pioneering research for Palawija crops prouction	Agriculture	FY87	3.87
20 Rice forecasting technical improvement project	Agriculture	FY88	8.45
21 Lower Pumeri basin agricultural development equipments maintenance project	Irrigation	FY88	3.89
22 Livestock health and production improvement equipments maintenance project	Livestock	FY89	5.44
23 Project for the multiplication and distribution of high quality seed potato	Agriculture	FY90	9.41
24 The remote sensing engineering project for development of agricultural infrstructure	Agriculture	FY91	4.25
25 Basic design study report on the pumping station project for Bengawan Solo Lower reaches (1/2)	Irrigation	FY91	4.58
26 Basic design study report on the pumping station project for Bengawan Solo Lower reaches (2/2)	Irrigation	FY92	3.28
27 Basic design study report on the reservoir (embung) development project in East Nusa Tenggara (1/2)	Irrigation	FY94	14.18
28 Basic design study report on the reservoir (embung) development project in East Nusa Tenggara (2/2-1)	Irrigation	FY95	0.46
29 The project for multiplication and distribution of high quality soybean seed	Agriculture	FY95	9.80
30 Basic design study report on the reservoir (embung) development project in East Nusa Tenggara (2/2-2)	Irrigation	FY96	14.34
31 Study report on the project for the improvement of equipment for irrigation in Eastern Indonesia (1/2)	Irrigation	FY96	8.77
32 Bogor agricultural institute research research equipments supply	Agriculture	FY96	0.44
33 Study report on the project for the improvement of equipment for irrigation in Eastern Indonesia (2/2)	Irrigation	FY97	4.66
34 Irrigation equipments maintenance project	Irrigation	FY97	7.67
35 Support of marine transportation expense accompanying emergency grant aid govenrment-purchased rice loan	Food	FY98	73.36
36 Eastern part area irrigation maintenance project	Irrigation	FY99	5.26
37 The project for Improvement of Fisheries Training in Semarang in Indonesia	Fishery	FY00	6.32

Development Studies			
1 Feasibility study on the Way Umpu/Pungbuan Project Irrigation	Irrigation	72	73
2 Feasibility study on the Way Rarem/Abung irrigation project	Irrigation	73	76
3 The Wonogiri irrigation and upper sale river improvement project	Irrigation	Jan 75	Sep 76
4 The Riam Kanan irrigation project	Irrigation	Jul 78	Mar 79
5 Lankeme irrigation project	Irrigation	Jul 80	Mar 81
6 The rice post harvest processing improvement project	Agriculture	Aug 81	Nov 82
7 Pre-feasibility study on the upper Komering river basin development project	Irrigation	Sep 79	Mar 82
8 The rice pest and disease forecastingand control project	Agriculture	Jan 82	Mar 82
9 The rice seed production and distribution project	Agriculture	Jan 82	Dec 82
10 Feasibility study on the Bila Irrigation Project	Irrigation	Jun 81	Jun 82
11 Feasibility study on the Sanrego Irrigation Project	Irrigation	May 82	Mar 83
12 Feasibility study on the K-C-C Irrigation Development Project	Irrigation	Jul 82	Jun 83
13 Mosaic photomap project of the dowstrean area of the Negara River Basin in South Kalimantan	Irrigation	Jul 83	Jul 86
14 Main crop production promotion project	Agriculture	Jul 87	Sep 87
15 Feasibility study on Batang Kumu irrigation project In Riau Province	Irrigation	Jun 85	Mar 86
16 Negara river basin overall irrigation development plan study	Irrigation	Mar 88	Jul 89
17 The study on improvement of rice post harvest and marketing in farmer groups	Agriculture	Jan 88	Jan 89
18 Lower Asahan river basin development	Irrigation	Jun 89	Jun 90
19 Feasibility study on air selagan irrigation project in Bengkulu Province	Irrigation	Aug 89	Nov 90
20 The feasibility study on the Nias island irrigation agricultural development project	Irrigation	Aug 90	Aug 91
21 Feasibility study for land development project improvement of land and irrigation systems at farm level	Irrigation	Feb 91	Sep 92
22 Rokan rives basin overall irrigation development plan study	Irrigation	Jan 91	Aug 92
23 Formulation of irrigation development program	Irrigation	Apr 92	Nov 93
24 Coast resources management strengthening project	Fishery	Sep 92	Mar 94
25 The study on the embung development in East Nusa Tenggara and West Nusa Tenggara	Irrigation	Jan 94	Jun 95
26 Gilirang Irrigation Project	Irrigation	Feb 94	Mar 95
27 The study on umbrella cooperation for integrated agricultural abd rural development	Agriculture	Feb 96	Jun 96
28 The study on the improvement in quality of the tropical fruits	Agriculture	Jul 97	Jun 98
29 Rural cooperative activation promotion project	Rural	Feb 96	Feb 99
30 The feasibility study on the integrated agricultural and rural development in Hihgland	Rural	Jul 98	Jun 00
31 The study for improvement irrigation system &empowerment of water users association for enhancement of Turnovar Program	Irrigation	Feb 00	Nov 01
32 The study on Fisheries Infrastructure Support and Coastal Communities Development Plan in Eastern Indonesia	Fishery	Mar 01	Oct 02
33 The Support Program for Agriculture and Fisheries Development in the Republic of Indonesia	Whole Sector	May 02	Jun 05
34 The study on Comprehensive Recovery Program of Irrigation Agriculture	Irrigation	Feb 03	Mar 04
35 Study on Improvement of Institutions and Information Systems for Agriculture Product Market	Agriculture	Mar 04	Oct 04
36 The Study on the Improvement of Farmers' Income: Agricultural Processing and Rural Micro Finance	Agriculture	Jul 05	Aug 06

Yen Loan (E/N, △ means timing of signing LA)		EN	LA	
1 Brantas Delta irrigation retrieval project	Irrigation	FY1970	Dec 70	3.26
2 North Sumatra tuna fishery port project	Fishery	FY1970	May 72	4.05
3 Way Djepara agriculture irrigation project	Irrigation	FY1971	Mar 73	6.69
4 Brantas river basin irrigation project (II)	Irrigation	FY1971	Sep 71	1.42
5 North Sumatra tuna fishery base maintenance project (II)	Fishery	FY1972	Aug 72	7.82

Figure 4.4.1 Japan's Major Cooperation Projects for the Agriculture and Fisheries Sector in Indonesia 1967 - 2005 (2/3)

Yen Loan (E/N, △ means timing of signing LA)		EN	LA	
6 Karisurabaya irrigation project	Irrigation	FY1973	Sep 74	13.99
7 Bali island tuna fishery base maintenance Project	Fishery	FY1972	Aug 74	5.97
8 Bone sugar mill project	Processing	FY1973	Dec 73	11.13
9 Tuna fishery base maintenance for North Sumatra (III)	Fishery	FY1973	Dec 73	10.44
10 Karisurabaya irrigation project (II)	Irrigation	-	Jul 76	26.81
11 Way Umpu/Pungbuan Project Irrigation	Irrigation	FY1974	Dec 74	3.75
12 Way Umpu/pungbuan Project Irrigation (II)	Irrigation	-	Jul 76	19.48
13 Way Rarem/Abung irrigation project (ES)	Irrigation	FY1976	Mar 77	3.22
14 Wonogiri irrigation and river improvement project (ES)	Irrigation	FY1976	Mar 77	5.13
15 The development project for the Jakarta fishing port/market (ES)	Fishery	FY1977	Nov 77	2.24
16 Wonogiri irrigation project	Irrigation	FY1977	Feb 79	98.00
17 Food aid	other	FY1977	Nov 77	60.00
18 Jakarta fishing port project	Fishery	FY1978	Mar 79	44.30
19 Way Rarem/Abung irrigation project	Irrigation	FY1978	Mar 79	73.65
20 Wides Irrigation Project	Irrigation	FY1978	Mar 79	18.33
21 Pasal/Ikan fishing port project (Jakarta fishing port and fish market II)	Fishery	FY1979	Jun 80	36.22
22 Way Rarem/Abung irrigation project II)	Irrigation	FY1979	May 80	102.45
23 Riam Kanan irrigation project (E/S)	Irrigation	FY1979	Mar 80	4.50
24 Ural river improvement and irrigation project	Irrigation	FY1980	May 81	81.40
25 Lamkeme irrigation project (E/S)	Irrigation	FY1981	Apr 82	3.20
26 Kurun Ache irrigation project (E/S)	Irrigation	FY1981	Apr 82	3.80
27 The upper Komering river basin development project (E/S)	Irrigation	FY1982	Sep 83	11.80
28 Rice post harvest improvement project	Agriculture	FY1982	Mar 84	58.00
29 Riam Kanan irrigation project	Irrigation	FY1983	Jun 84	86.36
30 The Bila irrigation project (E/S)	Irrigation	FY1983	Jun 84	5.50
31 Rice seed production and distribution project	Agriculture	FY1984	Feb 85	30.00
32 The Jakarta fishing port and a marine product market development project (III Transportation system of refrigerated food ES)	Fishery	FY1984	Mar 85	3.72
33 Lamkeme irrigation project (E/S)	Irrigation	FY1985	Dec 85	69.51
34 Way Umpu/Pungbuan irrigation and rehabilitation project	Irrigation	FY1986	Jan 87	13.92
35 Way Rarem/Abung irrigation project (III)	Irrigation	FY1987	Dec 87	30.27
36 Way Padjera irrigation improvement project	Irrigation	FY1988	Jul 88	10.82
37 Pamarayan/Chunjun irrigation rehabilitation project	Irrigation	FY1988	Oct 88	56.67
38 Private sector plantation trust plan (ADJF category B)	Agriculture	FY1989	Nov 89	169.55
39 Small scale irrigation management project	Irrigation	FY1989	Dec 89	18.96
40 Irrigation and flood control rehabilitation project	Irrigation	FY1989	Dec 89	215.18
41 Bogor Agriculture institute expansion project	Agriculture	FY1989	Dec 89	69.46
42 Ache irrigation project	Irrigation	FY1990	Dec 90	63.33
43 Bila irrigation project (I)	Irrigation	FY1990	Dec 90	64.60
44 Way Curup irrigation project	Irrigation	FY1991	Sep 91	14.22
45 Way Rarem irrigation project (IV)	Irrigation	FY1991	Sep 91	16.23
46 Bila irrigation project (II)	Irrigation	FY1992	Oct 92	37.88
47 Way Sekampung irrigation project	Irrigation	FY1992	Oct 92	76.53
48 South Sumatra swamp development project	Irrigation	FY1992	Oct 92	55.77
49 The Jakarta fishing port and a fish market maintenance project	Fishery	FY1993	Nov 93	40.09
50 Agriculture development project	Agriculture	FY1993	Nov 93	67.18
51 Batang Hari Irrigation Project	Irrigation	FY1993	Nov 93	6.76
52 Small Scale Irrigation Management Project (II)	Irrigation	FY1994	Nov 94	81.35
53 Way Sekampung irrigation project (II)	Irrigation	FY1994	Nov 94	162.10
54 Bogor Agriculture Institute Expansion Project (II)	Agriculture	FY1994	Nov 94	77.16
55 Komering Irrigation Project (II-I)	Irrigation	FY1995	Dec 95	65.44
56 Agriculture development project II)	Agriculture	FY1995	Dec 95	40.65
57 Bitun fishing port construction project (ES)	Fishery	FY1995	Dec 95	1.94
58 Project Type Sector Loan for Water Resources Development	Irrigation	FY1996	Dec 96	117.97
59 Integrated Horticulture Development in upand areas	Agriculture	FY1996	Dec 96	77.69
60 Batang Hari Irrigation Project	Irrigation	FY1996	Dec 96	60.50
61 Bili-Bili Irrigation Project	Irrigation	FY1996	Dec 96	54.72
62 Batang Kumu Irrigation Project (ES)	Irrigation	FY1996	Dec 96	3.74
63 Way Sekampung Irrigation Project (III)	Irrigation	FY1997	Jan 98	92.16
64 Small scale irrigation management project (III)	Irrigation	FY1997	Jan 98	167.01
65 Gilirang Irrigation Project (E/S)	Irrigation	FY1997	Jan 98	6.17
66 Sector Program Loan (I)	other	FY1998	Oct 98	500.00
67 Sector Program Loan (II)	Agriculture Fishery	FY1998	Dec 98	1,000.00
68 Batang Hari Irrigation Project (II)	Irrigation	FY2000	Jul 01	76.39
69 Project Type Sector Loan for Water Resources Development (II)	Irrigation	FY2000	Jul 01	186.76
70 Small Scale Irrigation Project (IV)	Irrigation	FY2002	Mar 02	270.04
71 Water Resources Existing Facilities and Capacity Improvement Project	Irrigation	FY2002	Mar 02	146.96
72 Rehabilitation and Improvement Project of Jakarta Fishing Port	Fishery	FY2003	Mar 04	34.37
73 Komering Irrigation Project (II-2)	Irrigation	FY2004	Mar 05	137.90

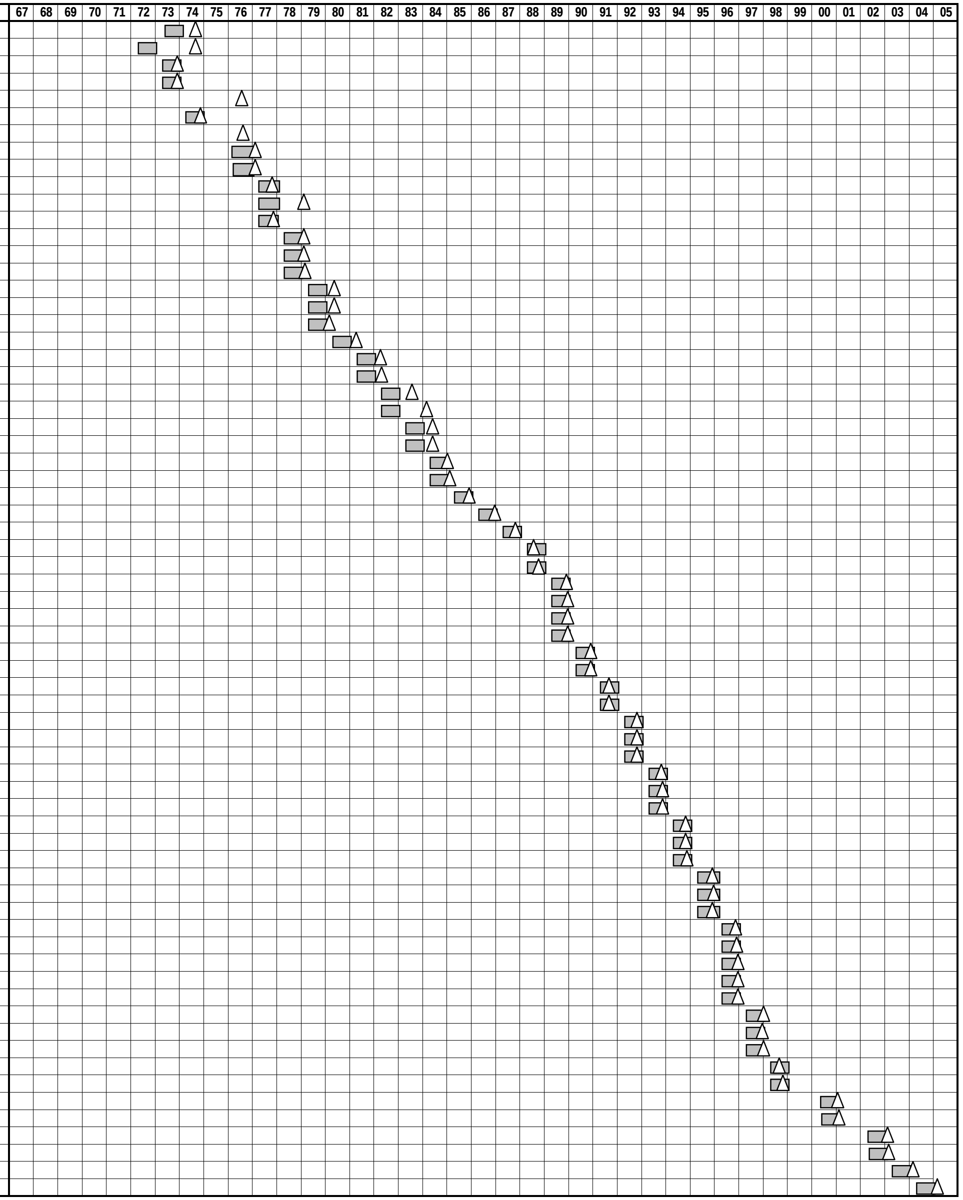


Figure 4.4.1 Japan's Major Cooperation Projects for the Agriculture and Fisheries Sector in Indonesia 1967 - 2005 (3/3)