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

SECTOR REPORT (2)
SECTOR ANALYSIS

MAY 2004

Nippon Koei Co., Ltd.

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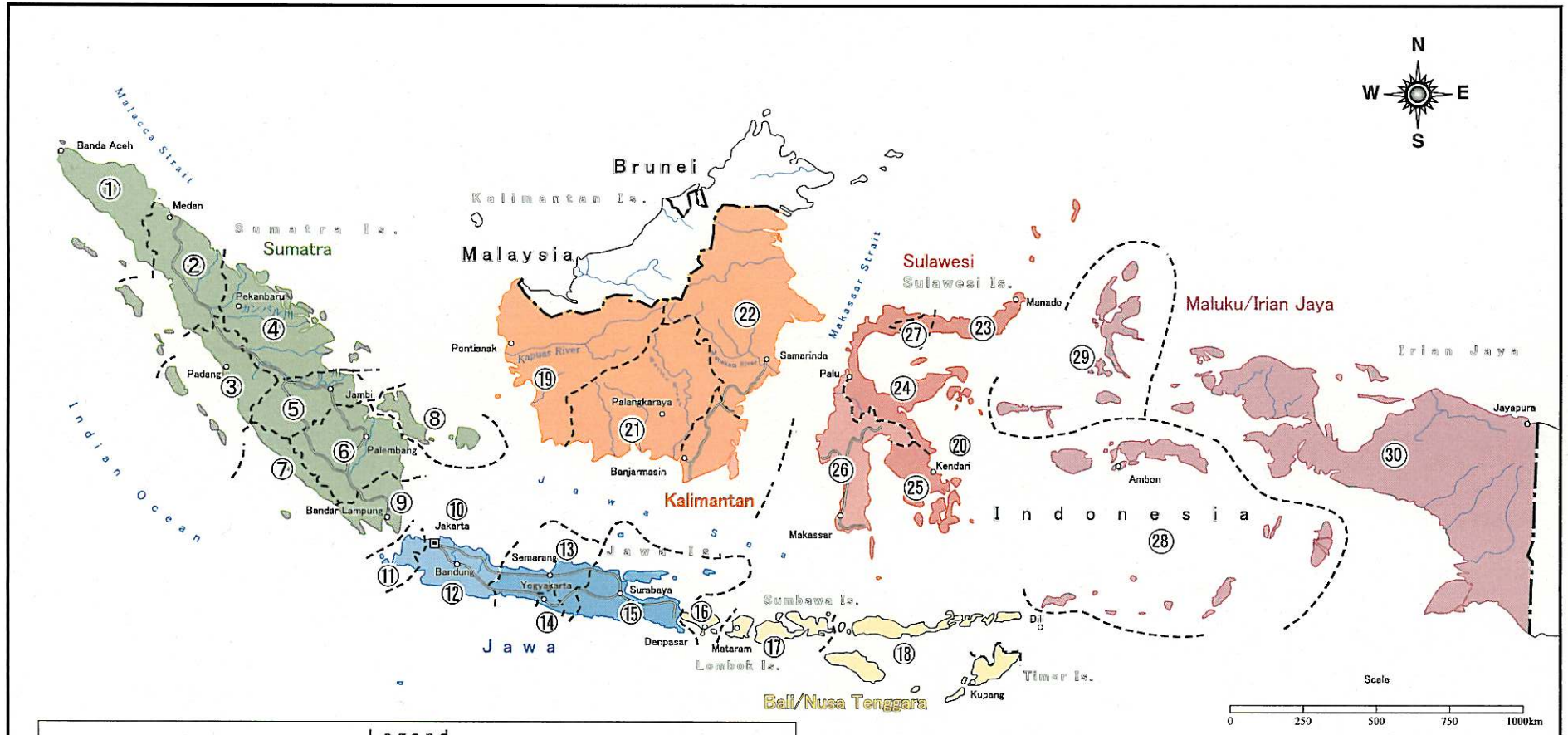

Legend

Province

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

- 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 2001, which was equivalent to U.S.$802, was still 70% of GDP per capita in 1996 (U.S.$1,147). Some economic indicators, such as the re-appearance of inflation and the decreasing tendency of foreign and internal investments, show negative signs in 2002. The recovery of Indonesian economy is thus still underway.

1.2 The agriculture, forestry, and fisheries sector occupies 17.5% of the total GDP of the economy in 2002 (Rp.1.61 quadrillion), which is the second largest share, following that of the manufacturing sector (25.0%). This sector employs about 45% of the total working population. Export from the sector, including processed goods, was valued at U.S.$7.4 billion in 2000, which is equivalent to 16% of the country's total export earnings of U.S.$62.1 billion. The sector plays an important role in the Indonesian economy, producing 17.5% 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.$146.7 billion at the end of December 2000, which exceeded the GDP in 2000. 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. 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, there are several problems such as the excess number of the personnel in the regional governments and incapability of the local government to conduct various services. Moreover, there is the inconsistency between the Law No. 22 "Regional Governance" and other regulations related to decentralization, resulting in the complication of implementation in the aspects of institution and policy.

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, relevant laws and regulations were amended in 2001 for to hand over to the water users association, and local government regulations are under preparation.
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 plan to reduce 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. 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 and O&M works; 3) the formulation of a proper O&M system and the promotion of transfer of irrigation system to WUAs; 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. 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 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 5.12 million tons in 2000 (a 53% increase for the 10 years). The consumption has also increased from 2.32 million tons in 1991 to 3.36 million tons in 2000 (a 45% increase for the 9 years) with a rise in the per-capita consumption (of 20% during the 1991-2000 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 (2000-2004), 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 Country Operational Strategy 2001-2005 prepared by the ADB, the focuses are on 1) creating and strengthening basic institutions by improving the many relevant areas in the governance; 2) supporting the sustainable recovery and pro-poor growth by enabling and encouraging private sector development; 3) improving regional equity through balanced regional development, especially targeting the rural areas and less developed islands; 4) investing in human and social development and enhancing the role of women; and 5)strengthening environment management to ensure sustainable use of natural resources and prevent adverse environmental impact associated with 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).

4.2 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, 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

4.3 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.

4.4 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.

4.5 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 various institutional systems in line with the decentralization policy
2) Development of livestock industry utilizing local resources

4.6 <u>Support for Policy and Various Institutional Systems 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.

4.7 Development of Livestock Industry Utilizing Local Resources

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

4.8 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.

4.9 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.

4.10 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) Supporting the promotion of turnover of O&M for irrigation facilities to WUAs and local government.
2) Strengthening of WUAs and local government for the above-mentioned purpose.
3) Rehabilitation of existing facilities and development of small-scale irrigation facilities for the above-mentioned purpose.

4.11 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.

4.12 Supporting the Promotion of Turnover of O&M systems for Irrigation to WUAs and Local Governments

O&M and rehabilitation are fully dependent on the government budget, and this has become a financial burden on the government. Under these 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.

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 under the institutional framework indicated by WATSAL. In this regard, along with progress in strengthening the above institutional framework, it is necessary to support the handing over of irrigation O&M to WUAs.

4.13 Strengthening of WUAs and Local Government for the above-mentioned Purpose

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.

4.14 Rehabilitation of Existing Facilities and Development of Small-scale Irrigation Facilities for the Above-mentioned Purpose

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 carry out O&M of the irrigation schemes in efficient and effective manner.

Components of the Program for the Sustainable Utilization of Fishery Resources

4.15 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 system for sustainable development of coastal and inland open water capture fishery and fish culture
2) Promotion of coastal and inland captures fishery and fish culture for expansion of local consumption of fishery products at low prices

4.16 Cooperation in Establishing the Resource Management System for Sustainable Development of Coastal and Inland Open Water Capture Fishery and Fish Culture

In order to utilize the fishery resource in a sustainable way, it is necessary to unify the management system between the central and regional levels. Moreover, in managing the resources, the participation of stakeholders is prerequisite. The community-based resources management that involves the groups of 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.

4.17 Promotion of Coastal and Inland Capture Fisheries and Fish Culture for Expansion of Local Consumption of Fishery Products at Low Prices

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.

4.18 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.

4.19 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.

4.20 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 investment incentives, ii) improvement and construction of information systems and iii) encouragement and strengthening of farmers' and fishermen's organizations to promote the local processing industry for agricultural and fishery product, and 2) support for income generation by poor people: promotion of micro credit schemes and recommendations and support for promoting and strengthening mutual-help organizations for farmers and fishermen.

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

i) Recommendation for the Institutional Framework for Creation of Investment Incentives

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 the 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 Industry 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.

4.22 Promoting 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.

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

4.23 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

4.24 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 fishery products
2) Recommendation on the establishment of basic market information systems for agricultural and fishery products

4.25 <u>Recommendation on the Improvement of Market Institutions for Agricultural and Fishery 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.

4.26 Recommendation on the Establishment of Basic Market Information Systems for Agricultural and Fishery Products

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

Sector Report (2)
Sector Analysis

LOCATION MAP

SUMMARY

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CURRENCY

U.S. $ 1.00 = Rp.8,661
(as of the end of April 2004)
(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*)
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*)
CEPT	Common Effective Preferential Tariff
CRIFI	Central Research Institute of Fisheries
CSIRO	Cooperative Scientific and Industrial Research Organization for Australia
DAC	Development Assistance Committee
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

DOLOG	Regional Logistic Agency (*Depot Logistik*)
EEZ	Exclusive Economic Zone
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*)
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
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
IPM	Integrated Past Management
IUP	Fishing Business License
ISF	Irrigation Service Fee
JICA	Japan International Cooperation Agency
JBIC	Japan Bank for International Cooperation
KIMBUN	Industrial Tree Crops Community Region (*Kawasan Industri Masyarakat Perkebunan*)
KIMPRASWIL	Ministry of Settlement and Regional Infrastructure
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*)
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
NPFS	National Programme for Food Security
NGO	Non Governmental Organization
NPFS	National Program for Food Security
ODA	Official Development Assistance
OECD	Organization for Economic Cooperation and Development
O&M	Operation and Maintenance
PBIS	Project Brief Information Sheet
PEMP	Economic Empowerment of Coastal Community
PII	Public Institutions and Infrastructures
POLAIRUD	Patrol Vessels of the Navy and Marine Police
PPNS	Civil Office Investigator
PPPPK or P4K	Ministry of Agriculture's Micro-Credit Project for Farmers and Fisherfolk (*Proyek Peningkatan Pendapatan Petani-Nelayan Kecil*)
PROPENAS	National Development Plan (*Program Pembangunan Nasional*)
SEKNEG	State Secretariat (*Sekretariat Negara*)
SME	Small & Medium Enterprise
SPI	Fishing Letter/Document
SSN	Social Safety Net
SUB-DOLOG	DOLOG for a Distrcit (refer to DOLOG)
S/W	Scope of Work
TAC	Total Allowable Catch
UNCLOS	United Nations Convention for Law of Sea
UNDP	United Nations Development Programme
USAID	United States Agency for International Development
WATSAL	Water Sector Adjustment Loan
WTO	World Trade Organization
WUA	Water Users Association

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), 6) the State Ministry of Cooperatives and Small and Medium Enterprises, 7) the Ministry of Industry and Trade (MOIT), 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 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 analysis 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 consists of four stages of work in Indonesia, i.e., the fourth and fifth in Japanese fiscal year 2004, and the sixth and seventh work in Japanese fiscal year 2004. Up to now, the fourth and fifth work 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).

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 -13.2% (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 (-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
Real GDP Growth Rate	8.2	7.8	4.7	-13.2	0.8	4.9	3.4	3.7
GDP Growth rate by Sector								
Agriculture, forestry and fisheries	6.7	6.3	2.1	-2.8	2.2	1.9	1.0	1.7
Mining	10.9	11.6	5.3	-11.4	-1.6	5.5	0.0	2.3
Manufacturing	15.9	13.6	12.4	3.0	3.9	6.0	4.1	4.0
Public work*1	12.9	12.8	7.4	-36.4	8.3	7.6	7.7	6.2
Construction	7.9	8.2	5.8	-18.2	-1.9	5.6	4.2	4.1
Trade and tourism	8.5	8.7	7.0	-15.1	-0.1	5.7	4.2	4.1
Transportation and communication	11.0	6.0	5.9	-26.6	-0.8	8.6	7.3	7.8
Finance	3.3	3.4	3.6	-3.9	-7.2	4.6	3.4	5.6
Service	2.8	3.3	3.4	3.6	1.9	2.3	2.0	2.0

*1: Electricity, gas, and water supply. Preliminary figures in 2001 and 2002.
Source: Statistical Yearbook 2002, 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 2002 was temporally announced at 3.7%, indicating continuous recovery of the Indonesian economy. However, some 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 (refer to the tables to the right and below).

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%

Source: Statistical Yearbook 2002, CBS

Trend of Investments

(Unit: US$)

	Foreign Investment			Domestic Investment		
	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	39,200
2001	1,333	15,100	-300	263	58,800	-33,600
2002	1,141	11,700	-3,400	184	25,300	-33,500

Source: the Investment Coordinating Board of Indonesia
(http://www.bkmp.go.id)

21-3 The GDP of the Indonesian economy was Rp.1.61 quadrillion in 2002 (refer to Table 2.1.1). Out of this, the manufacturing sector occupies the largest share with 25.0%, followed by the agriculture, forestry and fisheries sector (17.5%) and the trade and tourism sector (16.1%). The GDP per capita in 2001 was equivalent to US$802, which is higher than those in 1998 (US$478) and in 1999 (US$703), however is only 70% of the GDP per capita in 1996 (US$1,147).

21-4 The shares of each sub-sector in the agriculture, forestry and fisheries sector GDP in 2002 are shown in the following table. Farm food crops occupy the biggest share with 50.2%, followed by fisheries (16.6%), non-food crops (14.9%), and livestock (12.4%).

Share of Each Sub-sector in the Agriculture, Forestry and Fisheries Sector GDP（1996-2000）

（Unit: %）

	1996	1997	1998	1999	2000	2001	2000
Farm Food Crops	53.6	51.7	52.9	53.9	51.7	51.2	50.2
Non-food Crops	16.3	16.3	19.3	16.7	15.5	15.2	14.9
Livestock and Products	10.7	11.6	9.1	11.0	12.4	12.4	12.4
Forestry	9.2	9.7	6.8	6.4	6.9	6.4	6.0
Fisheries	10.2	10.8	12.0	12.0	13.5	14.9	16.6
Sector as a whole	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Statistical Yearbook 2002, BPS. Preliminary figures in 2001 and 2002.

21-5 Among the sub-sectors, fisheries have shown a relatively high growth rate through the years, followed by livestock (refer to the table below). On the other hand, farm food crops and non-food crops indicate low growth rates. In 2002, the former achieved a 0.5% growth, which is lower than the annual average population growth rate of 1.49% during the 1990–2000 period. 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
Farm Food Crops	2.1	-2.9	2.0	1.9	1.5	-0..8	0.5
Non-food Crops	4.5	1.4	0.1	2.3	0.2	2.4	3.2
Livestock and Products	5.1	4.9	-13.9	6.7	3.2	3.5	3.1
Forestry	2.2	11.6	-8.5	-4.3	1.6	2.0	2.0
Fisheries	5.4	5.8	1.9	10.7	4.9	4.7	3.6
Sector as a whole	3.1	1.0	-1.3	2.7	1.9	1.0	1.7

Source: Statistical Yearbook 2002, BPS. Preliminary figures in 2001 and 2002.

21-6 The agriculture, forestry and fisheries sector employs approximately 45% of the total working population (refer to the table below). Export from this sector, including processed goods, was valued at U.S.$7.4 billion, which is equivalent to 16% of the country's total export earnings of U.S.$62.1 billion (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

	1997年		1998年		1999年		2000年	
	People in thousands	%	People in thousands	%	People in thousands	%	People in thousands	%
Working Population	89,602.8	100.0	92,734.9	100.0	94,847.2	100.0	95,696.0	100.0
Employed Population	85,405.5	95.3	87,672.4	94.5	88,816.9	93.6	89,824.0	93.9
Unemployed Population	4,197.3	4.7	5,062.5	5.5	6,030.3	6.4	5,872.0	6.1
Employment by Sector								
Agriculture, Forestry and Fisheries	34,789.9	40.7	39,414.8	45.0	38,378.1	43.2	40,545.9	45.1
Mining and Manufacturing	11,884.2	13.9	10,608.2	12.1	12,241.7	13.8	12,112.0	13.5
Construction	4,185.0	4.9	3,521.7	4.0	3,415.1	3.8	3,537.4	3.9
Others	34,546.4	40.4	34,127.8	38.9	34,781.9	39.2	33,628.8	37.4
Total (Employed Population)	85,405.5	100.0	87,672.4	100.0	88,816.9	100.0	89,824	100.0

Source: Central Bureau of Statistics of Indonesia (http://www.bps.go.id)

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.

22-2 Taking the current financial conditions into account, the national budget (state revenue and expenditure) for FY2003 was approved in the national assembly (refer to Table 2.2.1). The budget prepares Rp.370.6 trillion for expenditure and Rp.336.2 trillion for revenue, resulting in a deficit of Rp.34.4 trillion (1.78% 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.107.5 trillion. Most of them are to be distributed to districts (Kabpaten) 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 26%, 72%, and 2% in the budget of the balancing funds: the share of the General Allocation Funds is the largest. Structure of the state revenue and expenditure is shown in Figure 2.1 and 2.2.

22-3 The total amount of the development expenditure and foreign loan in 2003 is Rp.65.1 trillion (17.6% 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, 7.3% 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 70%, 4%, and 26% respectively. When comparing these figures with their shares in the GDP (agriculture:77%, forestry:6%, and fisheries:17%), it should be noted that the financial distribution to the fisheries sub-sector is relatively large.

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 U.S.$146.7 billion at the end of December 2000 (private debts: U.S.$66.8 billion, public debts: U.S.$80.0 billion), which exceeded the GDP in 2000

(U.S.$137.6 billion). At the Public Creditor's Meeting (Paris Club) held in April 2002, it was agreed to defer an amount of U.S.$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 U.S.$2.7 billion of the U.S.$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.660 trillion (equivalent to U.S.$70.4 billion at the end of December 2002). Obviously, this national debt is a heavy burden for the GOI, which only has Rp.344 trillion for expenditure in the state budget. 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 FY2002 budget is reduced to Rp.41.6 trillion (Rp.66 trillion in FY2001), 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[2] 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

2 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.

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 - 2002)

	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

Source: Statistical Yearbook of Indonesia 2002

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, poverty is still 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.

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	1999
Average life span (year)	Male: 50.9; Female: 54.0	Male: 64; Female: 68
Death rate of infants less than one year old (/1,000)	112	50
Death rate of infants from 1 to 5 years old (/1,000)	125	60
Maternity death rate	360.0 (1984-85)	390.0 (1989-94)
Average delivery (times)	4.7	2.8
Literacy rate of adults (%)	Male: 77.7; Female: 57.7	Male: 89.6; Female: 78.0
Attendance rate for elementary school (gross)	Male: 114.6; Female: 99.7	Male: 116.9; Female:112.3
Attendance rate for junior high school (gross)	Male: 34.7; Female: 23.3	Male: 55.8; Female: 47.6

(Source) ADB, Country Operational Strategy: Indonesia, March 2001

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 protein3. 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 Kcal/person/day (1,984 Kcal/person/day in the urban area and 2,040 Kcal/ person/day in rural areas)[4]. However, the Asian crisis had negative impacts on people in calorie intake: in 1999 the intake reduced to was 1,849 Kcal/person/day (1,802 Kcal/person/day in urban area and 1,880 Kcal/person/day in rural areas)[4]. As the GOI's target is now 2,500 Kcal/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 fishing villages is of great importance as a measure for poverty alleviation

3 Assessment of Poverty in Indonesia, ADB Oct.2000

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

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 (Kabpatens) and cities (Kota). Accordingly, it is required that regional promotion and development be implemented by the initiative of regions based on its diversity, rather than through 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 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[5]. While the transferal of the facilities and public servants have been conducted smoothly, there are several problems such as the excess number of personnel in the regional governments and incapability of the local government to conduct various services.

24-3 The process of decentralization follows the schedule tabulated below. However, the preparation of government regulations, which are necessary to establish the framework of the two laws mentioned above, has been delayed in the schedule. Moreover, there is the inconsistency between the Law No. 22 "Regional Governance" and other regulations related to decentralization. In decentralization, thus, several problems have arisen from the aspects of institutions and policy.

5 Decentralization News, GTZ March 2001

Implementation Schedule of Decentralization

Period	Step	Content
Until January 2001	Preparatory work for The 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 the 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 the 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[6].

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

6 Indonesia, The Imperative for Reform, World Bank, November 2001

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 Willaya) of the Ministry of Settlement and Regional Infrastructure 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, and local government 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, and 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. 2) De-concentralization task is the authorities transferred with responsibility from the

central government to the kabupaten or municipality through the province to kabupaten along with necessary budget. Co-administration task is to assigned by the central government or province along with necessary budget, but the responsibility remains with the central government or province. 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 Sulawei Province, organization structure has been re-shaped due to decentralization. The governor's secretariats is 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 sector, 1) Dians 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 The situation of kabupaten is under processing. Under the decentralization, bupati is responsible to the kabupaten assembly 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.

2.5 Economic Globalization

25-1 With the establishment of the ASEAN[7] Free Trade Area (AFTA) on January 1, 2002, GOI is to take part in the regional agreement of free trade[8]. In 1992, the ASEAN-starting members of 6 nations, i.e., Indonesia, Brunei, Malaysia, Philippines, Singapore, and Thailand, adopted the AFTA, thereby 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. 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.

7 ASEAN:Association of Southeast Asian Nations

8 However, as some of target products and tariff rates are not made in public by each member, there is an anxiety for the practical function of the AFTA.

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[9], 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.

9 http://www.aseansec.org

CHAPTER 3 SECTOR ANALYSIS

3.1 Agriculture Sector

3.1.1 Land Use

(1) Current Situation

311-1 In 2000, out of 1.89 million km^2 area of the whole country, 1.09 million km^2, or 58% of the total area, is categorized as forest. The remaining 0.68 million km^2 (68 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 7.79 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 (2000)

(Unit: 1,000ha)

Region	Paddy Fields	Upland & Arable land	Grass Land & Fallow	Swamps, Fish Pond	House Compound	Estates & Wood Land	Total
Sumatra	2,112	5,057	4,659	1,90	1,902	12,837	26,795
Java	3,344	3,112	148	168	1,774	1,058	9,605
Bali, NTT	398	1,074	1,618	13	244	1,134	4,481
Kalimantan	968	1,858	8,146	98	811	6,919	18,802
Sulawesi	964	1,836	1,727	209	503	3,569	8,807
Maluku/Irian Jaya	-	-	-	-	-	-	-
Whole country	**7,787**	**12,937**	**1,6335**	**677**	**5,234**	**25,518**	**68,490**

Note: NTT=Nusa Tenggara Timur. No data available for Maluku & Irian Jaya.
Source: Agriculture Survey, Land Area by Utilization 2000 and 2001, CSB

311-2 Table 3.1.2 shows the annual transition of land utilization during the period from 1995 to 2000. As shown in the table, 700,000 ha of paddy fields and 600,000 ha of wood lands disappeared within the five 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].

311-9 The DG of Food Crop Production estimated at around 2.5 million ha of the potential development area for paddy field in order to realize stable paddy production. As a result, the DG aims at the new development of paddy field with 100,000ha in 2003[4].

(2) Subjects to be Considered in the Future

311-10 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, around 70% out of total production

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.

4: 10 Priority Provinces for the new development; West Sumatra, South Sumatra, Lampung, West Kalimantan, Central Kalimantan, South Kalimantan, DI. Yogyakarta, South-East Sulawesi, East Nusa Tenggara, and Papua.

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 maintained in Bali 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 2000. The transition for the last six years is given as below:

Harvested Area and Production of Major Food Crops

	Major Food Crop		1997	1998	1999	2000	2001	2002*
Paddy	Production	(1000 ton)	49,377	49,237	50,866	51,899	50,461	51,604
	Harvested Area	(1000 ha)	11,141	11,730	11,963	11,793	11,500	11,641
	Unit Yield	(ton/ha)	4.4	4.2	4.3	4.4	4.4	4.4
Soybeans	Production	(1000 ton)	1,357	1,306	1,383	1,018	827	743
	Harvested Area	(1000 ha)	1,119	1,095	1,151	825	679	619
	Unit Yield	(ton/ha)	1.2	1.2	1.2	1.2	1.2	1.2
Cassava	Production	(1000 ton)	15,134	14,696	16,458	16,089	17,055	16,723
	Harvested Area	(1000 ha)	1,243	1,205	1,350	1,284	1,318	1,291
	Unit Yield	(ton/ha)	12.2	12.2	12.2	12.5	12.9	13.0
Sweet Potato	Production	(1000 ton)	1,847	1,935	1,660	1,828	1,749	1,746
	Harvested Area	(1000 ha)	195	202	172	194	181	177
	Unit Yield	(ton/ha)	9.5	9.6	9.7	9.4	9.7	9.9
Peanuts	Production	(1000 ton)	688	692	660	736	710	716
	Harvested Area	(1000 ha)	628	651	625	684	655	657
	Unit Yield	(ton/ha)	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	9,816
	Harvested Area	(1000 ha)	3,355	3,848	3,456	3,500	3,286	3,326
	Unit Yield	(ton/ha)	2.6	2.6	2.7	2.8	2.8	3.0

Note: *: 3rd production prediction. Source: Agricultural Statistics 2002, MoA.

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 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[5]. 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.

5: Information from Ministry of Agriculture

Indonesia is also the largest rice-importing country. As shown in the below table, paddy production in Indonesia accounted for about 8% out of the world total, while the country's rice import was about 12% of total rice import.

Worldwide Paddy Production

(Unit: million ton)

Countries	1997-99 Average		2000		2001		2002*	
Bangladesh	30.9		37.6		38.1		39.0	
Brazil	9.9		11.4		10.4		11.5	
China	201.3		189.8		178.7		178.3	
EC	2.7		2.5		2.6		2.6	
Egypt	5.3		6.0		5.2		5.6	
India	129.0		127.3		136.1		133.0	
Indonesia	49.8	8%	51.9	9%	49.6	8%	48.7	8%
Japan	11.7		11.9		11.3		11.0	
Pakistan	7.1		7.2		5.7		5.2	
Philippines	10.8		12.5		13.1		13.0	
Thailand	23.6		25.6		25.3		24.6	
United States	8.7		8.7		9.7		9.6	
Vietnam	29.3		32.5		31.9		32.3	
World Total	589.8	100%	598.7	100%	593.1	100%	587.2	100%

Note:*:FAO prediction. Source: FAO, 2002

Major Import Countries and Import Transition

(Unit: million ton)

Countries	1997-99 Average		2000		2001		2002*	
Bangladesh	1.5		0.5		0.4		0.2	
Brazil	1.0		0.7		0.7		0.7	
China	0.2		0.2		0.3		1.1	
EC	0.7		0.6		0.7		0.7	
Indonesia	3.6	15%	2.0	9%	1.5	6%	3.0	12%
Iran, Isl. Rep.	0.7		1.1		1.0		1.2	
Japan	0.6		0.7		0.6		0.7	
Malaysia	0.6		0.6		0.6		0.6	
Nigeria	0.7		1.2		1.6		1.2	
Philippines	1.2		0.8		0.9		0.6	
Saudi Arabia	0.8		0.8		0.8		0.8	
Senegal	0.5		0.5		0.6		0.6	
World Total	23.5	(100)	23.0	(100)	23.7	(100)	25.2	(100)

Note:*:FAO prediction. Source: FAO, 2002

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., 6 million ton in 1998, 4 million ton in 1999, 2 million ton in 2000, and 1.5 million ton in 2001. In 2002, import of milled rice is estimated at about 3 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 2002 by province is shown in Table 3.1.7. According to the table, 5 million ton of milled rice is surplus in the entire country, while the provinces of North Sumatra, Riau, Southeast Sulawesi, East Nusa Tenggara, Irian Jaya, Maruku, and Jakarta are in deficit.

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 middle of 2003.

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 2000. 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
Maize	Local Production	(1000 ton)	9,307	8,771	10,169	9,204	9,677
	Import	(1000 ton)	639	1,123	327	635	1,286
	Dependency (%)		6	11	3	6	12
Soybean	Local Production	(1000 ton)	1,517	1,357	1,306	1,383	1,018
	Import	(1000 ton)	747	617	343	1,302	1,278
	Dependency (%)		33	31	21	48	56

Source : FAO.

312-10 As of 2002, around 10% and 60% 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 ^{o}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 wareness, 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
Onion	Production	(1000 ton)	769	606	599	938	772	861
	Harvested area	(1000 ha)	96	89	76	104	84	82
Cabbage	Production	(1000 ton)	1,580	1,339	1,459	1,448	1,336	1,205
	Harvested area	(1000 ha)	70	65	69	65	67	59
Carrot	Production	(1000 ton)	269	227	333	287	327	301
	Harvested area	(1000 ha)	20	17	21	18	20	18
Potato	Production	(1000 ton)	1,110	813	998	924	977	831
	Harvested area	(1000 ha)	70	50	65	63	73	54
Chili	Production	(1000 ton)	1,044	801	849	1,008	728	580
	Harvested area	(1000 ha)	170	162	165	183	175	143
Cucumber	Production	(1000 ton)	614	490	507	432	423	432
	Harvested area	(1000 ha)	56	52	55	48	44	48
Egg plant	Production	(1000 ton)	365	280	312	300	270	244
	Harvested area	(1000 ha)	43	41	44	39	36	36
Tomato	Production	(1000 ton)	592	461	547	562	593	484
	Harvested area	(1000 ha)	50	44	47	46	45	43

Source: Agricultural Statistics 2001、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 2001

Unit: 1,000 tons

Region	Onion	Cabbage	Potato	Pepper	Tomato
Sumatra	43	327	266	114	66
Java	665	799	535	375	314
Bali, NTT	129	53	7	49	35
Kalimantan	0	0	0	14	11
Sulawesi	19	23	23	27	55
Maluku, Irian Jaya	5	3	0	2	3
Whole Country	861	1,205	831	580	484

Source: INFORMASI, Hortikultura dan Aneka Tanaman, 2001, DG Horticulture Production

312-14 As can be observed from the above table, the major producing centres 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 (1999)

(Unit: ton)

	North Sumatra Province		Whole of Indonesia		Ratio
	Production (1)	Export (2)	Production (3)	Export (4)	(2) / (4)
Potato	192,570	31,550	924,060	32,270	98%
Tomato	71,340	580	330,340	1,720	34%
Onion	51,570	2,340	938,290	8,600	27%
Leek	16,070	630	323,860	940	67%
Cauliflower	n/a	680	n/a	3,580	19%
Cabbage	n/a	33,170	n/a	35,870	92%
Cucumber	20,290	5	253,450	10	50%

Source: Internal Data, Central Bureau of Statistics

(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
Avocado	Production	(1000 ton)	143	130	131	126	146	142
	Cultivated area	(1000 ha)	19	11	12	11	13	11
Durian	Production	(1000 ton)	267	236	210	194	237	347
	Cultivated area	(1000 ha)	39	25	26	24	23	50
Orange	Production	(1000 ton)	731	696	490	450	644	691
	Cultivated area	(1000 ha)	38	25	23	25	37	35
Mango	Production	(1000 ton)	782	1,088	600	827	876	923
	Cultivated area	(1000 ha)	149	48	33	37	44	44
Pineapple	Production	(1000 ton)	501	386	327	317	393	495
	Cultivated area	(1000 ha)	30	6	5	7	7	8
Papaya	Production	(1000 ton)	382	361	490	450	429	501
	Cultivated area	(1000 ha)	10	10	10	10	9	10
Banana	Production	(1000 ton)	3,023	3,057	3,177	3,376	3,747	4300
	Cultivated area	(1000 ha)	49	78	71	71	74	77
Ranbutan	Production	(1000 ton)	370	296	278	263	296	351
	Cultivated area	(1000 ha)	85	46	46	45	48	63

Source: Agricultural Statistics 2001, 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:

Small Farmers in Production and Cultivated Area of Major Estate Crops

(Unit: %)

Estate Crops		1996	1997	1998	1999	2000	2001
Rubber	Production	78	78	81	79	81	75
	Cultivated Area	85	84	85	86	85	85
Coconut	Production	97	97	97	97	97	97
	Cultivated Area	96	97	97	97	97	97
Oil Palm	Production	31	24	25	26	26	31
	Cultivated Area	39	32	32	33	33	32
Coffee	Production	94	93	94	94	94	96
	Cultivated Area	96	95	94	94	94	95
Cocoa	Production	87	80	86	84	87	87
	Cultivated Area	79	72	74	74	74	80
Tea	Production	20	21	20	21	22	24
	Cultivated Area	42	42	42	42	41	44
Cashew Nut	Production	99	99	99	100	99	100
	Cultivated Area	98	98	98	98	98	100
Sugarcane	Production	0	0	0	0	0	0
	Cultivated Area	0	0	0	0	0	0

Source：Statistic Indonesia 2002, 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 2000. 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. Kalimantan and Sulawesi Islands are main producing centres for cocoa.

312-20 The DG of Estate Crops guides sub-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 415 units of KIMBUN have been established in the country as a whole in 2001. 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[6]. 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. 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

6: 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)

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[7].

Livestock Number Trends

Unit: 1,000heads, 1,000birds

Livestock	1997	1998	1999	2000	2001	2002
Dairy cattle	334	322	332	354	347	354
Beef cattle	11,939	11,634	11,276	11,008	10,215	10,436
Buffalo	3,065	2,829	2,504	2,405	2,310	2,436
Sheep / Goats	21,861	20,704	19,927	19,993	19,717	20,706
Pigs	8,233	7,798	7,042	5,357	5,287	6,122
Native Chickens	260,835	253,133	252,653	259,257	267,042	279,801
Layers	70,623	38,861	45,531	69,366	70,210	76,016
Broilers	641,374	354,004	324,346	530,874	621,834	713,131
Ducks	30,320	25,950	27,552	29,035	32,003	33,627

Source: Statistical Book on Livestock 2002, MoA. Preliminary Figures in 2002.

312-25 Table 3.1.14 shows the geographical distribution of livestock in Indonesia, as summarized in the following table. As of 2000, the number of livestock 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, 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

7: Information from DG of Livestock Production, Ministry of Agriculture

pigs are reared mainly on Sumatra and the eastern islands, respectively.

Number of Livestock by Region（2001）

Unit: 1,000heads, 1,000birds

Livestock	Sumatra	Java	Kalimantan	Sulawesi	Others	Total
Dairy cattle	7	339	0	0	0	347
Beef cattle	2,566	4,256	384	1,481	1,588	10,275
Buffalo	1,202	556	66	194	316	2,333
Sheep / Goats	3,694	18,864	275	915	1,118	19,865
Pigs	1,375	165	660	737	2,432	5,369
Native Chickens	91,919	111,005	15,965	28,051	21,099	268,039
Layers	24,405	36,542	2,879	4,460	1,968	70,254
Broilers	105,865	444,994	41,851	7,439	21,721	621,870
Ducks	10,966	11,653	3,157	4,792	1,500	32,068

Source: Statistical Book on Livestock 2001, Ministry of Agriculture

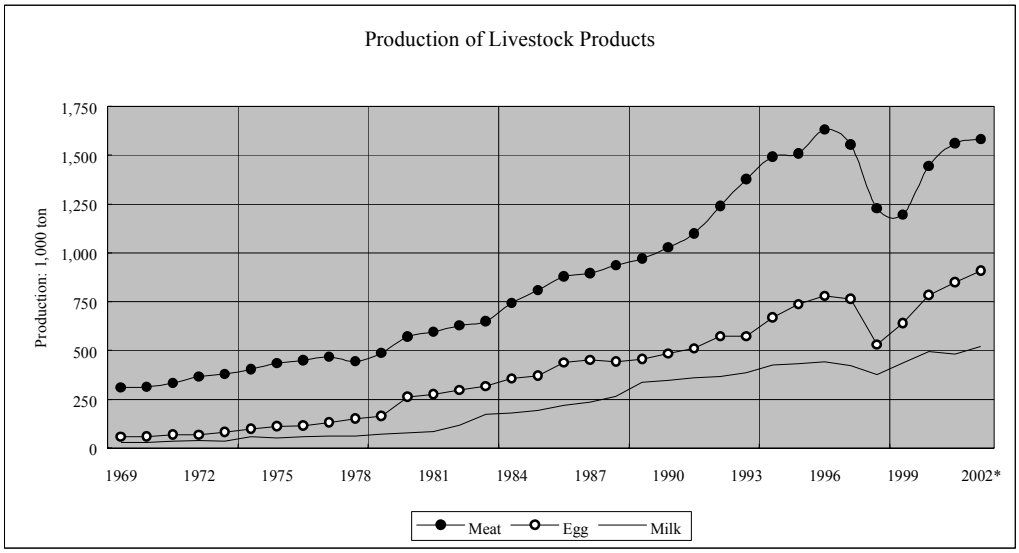
313-3 As shown in Tables 3.1.14, around 3 million farmers raise around 11 million heads of cattle (including dairy and beef cattle). Therefore the average number of cattle raised by each farmer is estimated at three to four heads.

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 Bengkel 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 beef, eggs, and milk as of 2001 are 98%, 100%, and 41%, respectively.

Supply and Demand of Beef, Eggs and Dairy Products

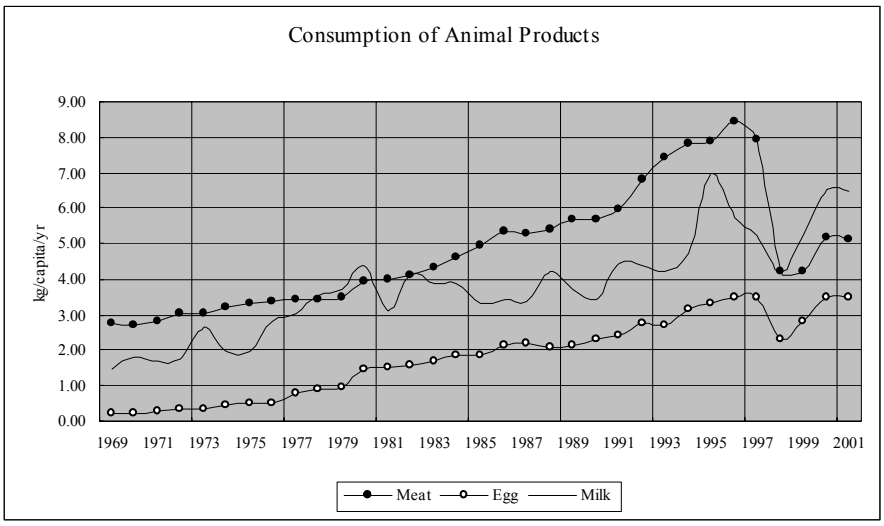
Unit: 1,000 ton

Item		1997	1998	1999	2000	2001	2002
Meat *	Domestic Production	1,555	1,229	1,196	1,445	1,559	1,770
	Import	33	14	23	72	44	44
	Self-sufficiency (%)	98	99	98	95	97	98
Eggs**	Domestic Production	692	464	640	783	850	946
	Import	0	0	0	0	0	0
	Self-sufficiency (%)	100	100	100	100	100	100
Milk	Domestic Production	357	316	436	496	480	493
	Import	693	527	822	1,480	1,476	1,331
	Self-sufficiency (%)	34	38	39	35	38	41

Note: * including beef, buffalo, goat, sheep, pork, horse, and poultry (native chickens, layer, broiler and duck)
** including native chickens, layer, and duck
Source: Statistical Book on Livestock 2002, 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.[2] 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 (equivalent to protein) is shown in the following figure.

2: Food Balance Sheet (1999) shows that annual per-capita consumption of animal and fish products is estimated at 4.11kg of meat, 2.74kg of eggs, 5.08kg of milk, 17.73kg of fish products. While daily caloric intake per capita of animal and fish products is estimated at 26kcal of meat, 11kcal of egg, 9kcal of milk, 39kcal of fish products.



(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 2001.

Irrigated Area

(Unit: ha)

Island	1982	1990	Increment 1982 to 90	1999	2000	2001	Increment 1990 to 99
Sumatra	613,000	900,000	(287,000)	1,077,000	1,060,000	1,054,000	(177,000)
Java	**2,500,000**	**2,536,000**	**(36,000)**	**2,605,000**	**2,584,000**	**2,575,000**	**(69,000)**
Kalimantan	31,000	207,000	(176,000)	240,000	228,000	245,000	(33,000)
Sulawesi	248,000	497,000	(249,000)	607,000	661,000	645,000	(110,000)
Others	208,000	308,000	(100,000)	503,000	336,000	348,000	(195,000)
Total in off-Java	**1,100,000**	**1,912,000**	**(812,000)**	**2,427,000**	**2,427,000**	**2,427,000**	**(515,000)**
Grand Total	**3,600,000**	**4,448,000**	**(848,000)**	**5,032,000**	**4,869,000**	**4,867,000**	**(583,000)**

Remarks: Data series during the period from 1982 to 1999 are different from data series in 2000 and 2001, therefore, increment is not obtained from 1990 to 2000 or 2001. 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 and 2001, 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 2001:

Paddy Field in 2001

(Unit: ha)

Island	Irrigated		Non-Irrigated		Total	
Sumatra	1,054,000	21.7%	1,044,000	37.8%	2,098,000	27.5%
(Proportion)	50.2%	-	49.8%	-	100.0%	-
Java	**2,575,000**	52.9%	**764,000**	27.6%	**3,339,000**	43.8%
(Proportion)	77.2%	-	22.8%	-	100.0%	-
Kalimantan	245,000	5.0%	599,000	21.7%	844,000	11.1%
(Proportion)	29.0%	-	71.0%		100.0%	
Sulawesi	645,000	13.2%	292,000	10.6%	937,000	12.3%
(Proportion)	68.8%	-	31.2%		100.0%	
Others	348,000	7.2%	65,000	2.4%	413,000	5.4%
(Proportion)	84.3%	-	15.7%		100.0%	
Total in off-Java	**2,292,000**	47.2%	**2,151,000**	72.4%	**4,443,000**	56.2%
	51.6%	-	48.4%	-	100.0%	-
Grand Total	**4,867,000**	100.0%	**2,765,000**	100.0%	**7,632,000**	100.0%
	60.5%	-	39.5%	-	100.0%	-

Source: Agriculture Survey, Land Area by Utilization 2000 and 2001, 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, 77% 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 and 3.1.19):

Irrigated Area by Irrigation Standard (2000)

(Unit : ha)

Islands	Irrigation System			
	Technical	Semi-technical	Simple	Total
Sumatra	305,000 ha	270,000 ha	485,000 ha	1,060,000 ha
Java	1,527,000 ha	400,000 ha	656,000 ha	2,584,000 ha
Kalimantan	22,000 ha	28,000 ha	178,000 ha	227,000 ha
Sulawesi	288,000 ha	114,000 ha	259,000 ha	661,000 ha
Others	130,000 h	240,000 ha	133,000 ha	336,000 ha
Total	**2,214,000 ha**	**979,000 ha**	**1,675,000 ha**	**4,869,000 ha**

Source: Source: Agriculture Survey, Land Area by Utilization 2000 and 2001, 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, 34%. Around 66% 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 (the existing organization for irrigation management is shown on Figure 3.1.3). 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, 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

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) Farm Road

314-15 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

314-16 Maintenance and repair of farm roads are generally carried out from village budgets.

314-17 (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 plans to hand over the function of O&M to WUAs and WUA Federations. At present, the system of support from the central government to WUAs is being transferred to provinces and districts in accordance with Law No. 22/1999 "Regional Governance." After the decentralization is completed, the MOHA and KIMPRASWIL will take responsibility for coordination among the ministries at the central level. On the other hand, all supporting systems to WUAs will 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 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 At present, the government has been initiating the establishment of new water resources policies and legal reform, and has 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 is being carried out. The scope of work consists 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)

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

315-14 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:

List of Law and Government Regulation

Laws and Regulations	Concerning (Main Contents)
Government Regulation No.22/'82	Rules for water management
Government Regulation No.23/'82	Promotion of irrigation development
Presidential Decree No.2/'84	Establishment and strengthening of WUAs
Irrigation O&M Policy (IOMP) and Irrigation Service Fee (ISF) in '87	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/'92	Collection of ISF
Regulation of Minister of Home Affairs No.12/'92	Establishment and strengthening of WUAs
Regulation of Minister of Home Affairs No.19/'92	Collection of ISF
Government Regulation No.6/'98	Rule for repayment of construction cost by WUAs
Presidential Decree No.3/'99	Irrigation management policy reform (IMPR)
Government Regulation No.77/'01	Irrigation (amendment of Government Regulation No.23/1982 concerning irrigation)
Decree of KIMPRASWIL No. 529/KPT/'01	Guideline on transfer of authority to conduct irrigation management to WUA
Regulation of Minister of Home Affairs No.50/'01	Guideline on empowerment of WUA

(3) Governmental Organization for Empowerment of WUAs

315-15 The supervisory ministries for WUAs are the KIMPRASWIL, the MOA and the MOHA. Among these, KIMPRASWIL 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.

315-16 At present, the supporting system of the central government to WUAs is being transferred to provinces and districts following Law No. 22/1999, "Regional Governance." After the decentralization is completed, the MOHA and KIMPRASWIL will take responsibility for coordination among the ministries at the central level. On the other hand, all the supporting systems to WUAs will be integrated in the management of district governments and managed in a unified manner.

315-17 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 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 this moment, local governments are preparing related district regulations for implementation.

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

315-18 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 the government. The O&M of the main and secondary systems are conducted under the responsibility of the government.	State budget (APBN) + Provincial budget (APBD) + special budget for poverty alleviation
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.

315-19 The cost for training of WUAs is included in the above budget as a lump sum. The above-mentioned budget is finally approved through review and modification by MOHA and BAPPENAS based on the application submitted from the provincial government. After completion of the decentralization, however, the authority of approval will be vested in the provincial governments.

315-20 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.

(5) Evaluation of the Existing WUAs

315-21 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. 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.

315-22 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. Under such circumstances, the establishment of WUAs is an urgent requirement for the promotion of the transfer of irrigation system management from the government to WUAs.

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

315-23 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.

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.

315-24 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%
1999/2000	7%
Average	20%

315-25 (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 and maintenance 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 the shift to water user organizations.
- 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 are through the National Logistics Agency (BULOG), which plays a major role in price stabilization, rationing to soldiers and special operation for people in need of rice. Rationing of rice to government employees was replaced with cash payment equivalent.

BULOG's activities are still under review with possible restructuring in the direction of it becoming a public company.

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.

316-4 Market channels through the private sector in general 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 quality standards are applied in private marketing channels. Major wholesalers and millers are mostly overseas Chinese. The majority of farmers are small-scale. In many 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:

BULOG, with its regional organizations (DOLOG/SUB-DOLOG), procures 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 set by BULOG 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 BULOG 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.

Milk

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 August, 2002) 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) 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 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 inferior raw materials, 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. Some success stories have been reported under the continuation of the deregulation policy. This situation may lead to a distribution revolution with the development of a consumers' market. Improvement of the market and distribution is therefore imperative in order to respond to the prospective expansion and diversification of the demand in the future.

316-43 (3) 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 It is required that an Agricultural Extension Information Center (BIPP: Balai Informasi dan Penyulunan Pertanian) be located in each district (Kabupaten) and controls BPPs in the district and Extension Office (BPP) be positioned in each sub-district (Kecamatan) under the jurisdiction of BIPP. BIPPs are 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 BIPPs, and also training extension officers and farmers. Approximately 120 out of the entire 336 BIPPs have maintained their ordinary functions as shown in Table 3.1.20, and the others have been mostly reorganized or dissolved. Each district has an individual plan for restructuring the organization and function of its BIPPs, depending on their extension service policy and strategy. As a result, it is expected that each district have certain systems and function on extension service to be adaptable according to its regional characteristics. With regard to the extension service, the responsibility of the MOA is to formulate guidelines, conduct monitor activity, provide technical assistance for local governments, etc., while local governments are the executing agencies of the extension service. After decentralization, salary and other miscellaneous costs for extension officers are granted in a lump sum from the budget of the Ministry to local governments.

317-2 As of April 2002, BPPs have been established in 3,742 sub-districts out of the 4,126 sub-districts throughout the country (refer to Table 3.1.21). As of June 2002, 33,032 extension officers are deployed in the whole country, and each extension officer covers around 800 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, activities of BIPP in 5 districts out of 343 districts of the whole country have been discontinued as of June 2002.

317-4 National development budget for assistance of extension service is allocated to selected local governments, which follow the national policy on extension services. The criteria for selection of suitable BIPPs are (i) BIPP should have original function of extension service, (ii) Extension officers should play a primary role and their performance should be properly reviewed, and (iii) The function of the extension service in BIPPs is independent. As of 2002, the number of BIPPs and BPPs, to which the national development budget is disbursed, came to about 100 and 500 units, respectively.

(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 26,000 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 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) are located in 26 provinces except four provinces, that is Bangka-Belitung, Gorontalo, North Molucas, and Banten. 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 11 Agricultural High Schools. After decentralization, some of them were transferred to local governments. 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 (Kuredit Ketahanan Pangan:KKP) programme entered its second year, and the KKP loan-deposit ratio as of May 2002 was about 30%, indicating smooth operation compared with the 4% figure of the first year of its operation, as shown in Table 3.1.23. However, the current situation on utilization of KKP is still unsatisfactory, due to severe criteria for selection of borrowers. 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. Various procedures are required for its application, and strict fulfillment of several conditions is thus required of borrowers. Consequently, it takes a considerable amount of time to complete the procedure, and cases may arise in which credit is not available in time.

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 would be postponed and therefore government subsidy could thus be 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 (Peningkan 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[1]. 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 more than 90% of the credit disbursed was repaid, 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 September 2001 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

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

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 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, 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 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 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 2000 was about 5.12 million tons (National Fishery Statistics 2002), and the total fish consumption in the same year was about 3.36 million tons (Food Balance Sheet of the Ministry of Agriculture 2000-2001). The yearly fish consumption per capita was 19.27 kg in 2000 (Food Balance Sheet). By contrast, the cattle meat production in 2000 was 1.45 million tons and the consumption was 1.52 million tons (National Livestock Statistics 2002), the production of eggs was 0.783 million tons with 0.784 million tons consumed, while milk production was 0.496 million

tons with 1.4 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 2001 was 5.3 kg of meat, 3.54 kg of eggs and 5.5 kg of milk.

321-2 Production of fishery products increased from 3.35 million tons in 1991 to 5.12 million tons in 2000 (a 53% increase for the 10 years), while consumption increased from 2.32 million tons in 1991 to 3.36 million tons in 2000 (a 45% increase for the 10 years) (Food Balance Sheet of the Ministry of Agriculture 2000-2001). The consumption per capita of fishery products in 1991 was 12.82 kg and it increased by 20% between 1991 and 2000 (Food Balance Sheet). 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 2002). 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 2000 was 42 calories of fishery products, 34 calories of cattle meat and 24 calories of milk and eggs (Indonesia Food Balance Sheet 2000-2001).

321-4 These figures show that the demand and supply of fishery products is increasing and that the demand for fishery products is increasing relative to 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 part 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 villagers, 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

i) Article No. 141 of the Government Decree in 2000

- 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.
- 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.
- 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 Controlling.

ii) Article No. 45 of minister decree of the MMAF in 2000 (Institution on Fishing Business License given by central government)

- Institution on fishing licenses given to personal or entrepreneur who engages in fishing activities or aquaculture for commercial purpose.
- This institution adapts to all commercial fishing activities and aquaculture in Indonesian Waters (9 marine zones) and Indonesian Exclusive Economic Zone (IEEZ).
- This institution regulates necessary fishing licenses for Indonesian fishing vessel and foreign vessel.
- 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. 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).

- The contents described in the fishing business license are as follows:

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.
- 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.

iii) Institutions based on the "Decentralization Policy" Law No. 22 of 1999

- The province manages the marine territory within 12 nautical miles from shore.
- The province has a power and responsibility to manage natural resources in its marine territory and utilize, exploit, protect and control the marine resources and conduct zoning and legal enforcement.
- The power of district and municipality in the above marine territory is one thirds (1/3) or more of the provincial marine territorial area. (In fact, 4 nautical miles from shore)
- In the place where coastal community has a traditional fishing management regulation (customary law), the province and district must prepare the relevant legal basis based on that. In case coastal community does not have any, the province and district makes a new legal basis.
- If penal acts against the above provisions happen, the suspect is imposed to pay fine of Rp.5 million or less, or imprisonment of 6 months or shorter.
- Traditional fishermen (Although there is no definition of the term) are neither restricted their original fishing ground nor their operational or moving area. (In the Basic Fishing Law of 1985, fishermen whose daily livelihood depends on fishing activities are described. The MMAF advocates these fishermen should be called as traditional fishermen or artisanal fishermen. In this report, this interpretation is cited for defining the term of "artisanal fishermen".)

iv) The Regulation on Decentralization regarding Marine Area, MOHA in 1999 (The MMAF explains this regulation is still in draft and has not validated.)

- A marine border between two neighboring or facing provinces is not made.
- The province gives a fishing license to fishing vessel of 15GT or higher up to less than 60GT, and the district and municipality gives a license to fishing boat of less than 15GT. (No description about engine's HP)
- The province, district and municipality have power to levy users of marine and fishery resources in their respective managing waters
- The marine area is divided into three zones, namely "Protection Area", "Exploitation Area" and "Special Area". The regional autonomies manage those zones.
- The province has a power of law enforcement.
- Conservation of traditional fishing is respected and customary law is recognized.

v) Article No. 392 of ministerial decree of agriculture 1999 (Regulation on fishing ground)

- Fishing ground is divided into 3 categories from Area 1 to Area 3. Area 1 is a marine area within 9 nautical miles from shore, of the area within 3 nautical miles from shore is called "Coastal Area". In coastal area, only non-powered boat of the length shorter than 10m can operate fishing and only non-movable type fishing gear like "stow net" is allowed to use. In the area outside of coastal area up to 6 miles from shore, fishing boat with outboard engine and the length shorter than 12m and the weight less than 5 tons can enjoy fishing. Purse seine net shorter than 150m and drift gill net shorter than 1,000m is allowed to use in the area.
- In the Area 2 (No description about distance from the Area 1), fishing boat of 5 tons or heavier up to less than 60 tons can operate (No description about engine's HP). Purse seine net shorter than 600m, Tuna long line with 1,200 hooks or less and drift gill net shorter than 2,500m is allowed to use.
- In the Area 3 (No description about distance from the Area 2, but it can be interpreted the area is outside of 12 miles from shore, since foreign vessel is permitted to operate fishing in the same area.), fishing vessel up to 200 tons in maximum is allowed to operate fishing. Foreign fishing vessel can also participate. There is no description about fishing gear allowed.

vi) Article No. 51 of ministerial decree of agriculture 1997

- The district has an authority to issue a license for setting artificial reef and/or floating reef in sea shallower than 200m in depth and marine area within 3 miles from shore. The province has an authority to setting artificial reef and/or floating reef in marine area within 12 miles from 3 miles line.
- Setting deep sea artificial reef which set 200m in depth or deeper, needs a license issued by the central government. Fishing company, governmental agency and research institute exclusively can apply for that. Setting points must be within 12 miles from shore. Small-scale fishermen can access freely to the points nearby the deep sea artificial reef and enjoy fishing.

vii) Article No. 15 of governmental decree and Article No. 815 of the ministerial decree of agriculture in 1990

- Fishing licenses necessary to all Indonesian and foreign fishing vessel
- The central government can give a fishing license to fishing vessel of 30GT or higher. The governor of province can issue a fishing license to fishing vessel of less than 30GT or with less than 90HP engine. (The district's fishery service can issue a fishing license to fishing boat of 5GT or higher up to less than 10GT.)

viii) The Basic Fishing Law (Article No. 9 of fishing act in 1985)

- 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
- 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.)
- Introduction of fishing license to all fishermen (companies/individuals) who operate fishing activities in Indonesian marine areas (except traditional fishermen)
- 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.

ix) Article No. 39 of presidential decree in 1980

- Ban of trawl fishing in marine area of western part of 125 degrees of east longitude.

x) Article No. 123 of ministerial decree of agriculture in 1975

- Regulation on mesh size of purse seine net used for pelagic fish capture fishery targeting for mackerel and flying fish etc. in coastal marine area and IEEZ

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

- 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.
- 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

322-4 In PROPENAS, the expansion of 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 law no. 22 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 almost nothing about 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.

i) Article No. 1042 of ministerial decree of agriculture in 1999
- Regulation on certification system for seed quality

ii) Article No. 1041 of ministerial decree of agriculture in 1999
- Regulation on seed production and distribution of seed

iii) Article No. 811 of ministerial decree of agriculture in 1999
- Definition for certification of seed quality at national aquaculture development center in region

iv) Article No. 810 of ministerial decree of agriculture in 1999
- Permission by the Minister of Agriculture for aquaculture of new target species and strains

v) Article No. 26 of ministerial decree of agriculture in 1998
- Seed producers either public institute or private hatchery must make a seed production manual

vi) Law of 1950
- The central government gives a license for aquaculture business invested by foreign capital. (Pearl oyster culture, prawn culture etc.)
- Though basic law or ministerial decree can not be identified, there seems to be certain regulation that anyone who engages in prawn culture and whose ponds are more than 250ha must have a facility for waste treatment.

4) Institutions Related to Fish Trade

i) Item No. 7, Article No. 64 of law "Power of central government and regional government" in 1957 (It was lined by the Ministry of Home Affairs in 1992.)
- The regional government must implement "auction" regarding to fish trade based upon the guideline of the MOA.
- Based on the above law, the Ministry of Home Affairs notified each province and district and ordered to make acts regulate auction implementation rules, places and organizations.
- The outline of the above notification is as follows:
・ The regional government has an ownership of premises for implementing auction.
・ The regional government has a role for implementing auction. But the same may consign fishermen's organization like KUD. In this case, the regional government selects capable fishermen's organization for implementing auction based upon a selective standard. The regional fisheries service directly manages the auction when the regional

government judges no-availability of such a fishermen's organization.

- Basically, the auction must be implemented daily.
- After auction implementing organization selected, the local fisheries service, cooperative service, tax office and port office of the regional government monitor whether auction is implemented properly or not.
- The fishermen's organization, which is an implementing agency of auction, appoints a leader of auction and gets approval from the chief of local fisheries service and port service of the regional autonomy.
- Anyone can participate in fish trade through auction. At the every participation, buyer must be registered in the local fisheries service or fishermen's organization that is an implementing agency of the auction.
- The record of fish trade through auction must be submitted to the local fisheries service of the regional government periodically.
- The success of auction and the price must be made public announce.
- Before auction starts, the catches are sorted by species, size, quality (mainly freshness), owner (catcher) and weighed, and put into container.
- The potion of space for weighing, auction hall and packing must be 1:2:1.

ii) Item No. 19 of Article No. 9 of basic fishing law in 1985

- Improvement of income of fishermen and aquaculture farmers, and supply fishery products to consumer with reasonable price by proper fish trade and the quality improvement. (KUD and fishing companies are responsible for this role.)

5) Subjects to be Considered in the Future

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.

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.

iii) The existing laws and regulations relating to fishing management are old-fashioned. Therefore, revisions are necessary to realize decentralization and international sustainable utilization of fishery resources.

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.

v) Regarding fishing management, the article no. 60 of the ministerial decree of MMAF in 2001 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 Article no. 141 of the ministerial decree of MMAF in 2000 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.)

vi) Illegal fishing such as dynamite fishing, poison-use fishing and penal fishing done by foreign vessels are rampant. It is necessary to strengthen an institution and system for controlling fishing.

vii) It is necessary to establish a legal framework and regulations for measures necessary for management and technical support on the sustainable 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.

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.

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.

(2) Fishery Extension System

322-5 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)

322-6 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

322-7 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 vitalize fishing villages 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

322-8 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.

322-9 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.

322-10 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.

322-11 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.

322-12 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.

322-13 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.

322-14 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
Fisheries University of Jakarta	69	1,000
Fishery Academy	**No. of Teachers**	**No. of Students**
Sidoarjo Fisheries Academy	20	210
Bitung Fisheries Academy	13	268
Sorong Fisheries Academy	10	67
Fishery High School	**No. of Teachers**	**No. of Students**
Fisheries High School at Aceh	6	260
Fisheries High School at Pariaman	10	306
Fisheries High School at Pontianak	9	331
Fisheries High School at Tegal	29	366
Fisheries High School at Bone	13	260
Fisheries High School at Waehelu, Ambon	10	260
Fisheries High School at Sorong	16	341
Fishery Training Center		
Fisheries Training Center at Medan	15	-
Fisheries Training Center at Tegal, Central Java	35	-
Fisheries Training Center at Banyuwangi, East Java	20	-
Fisheries Training Center at Aertembaga, North Sulawesi	18	-
Fisheries Training Center at Ambon, Maluku	2	-

Note: As of August 2002
Source：Fishery Education Training Center 2002

Subjects to be Considered in the Future

322-16 - 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.

322-17 - 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 2002, the total yield of fishery production, which is the sum of capture fishery and aquaculture production in 2000, was approximately 5.12 million tons. Marine capture fishery

production was 3.81 million tons, or 74% of the total. Inland open water capture fishery production in rivers and lakes was about 0.32 million tons, or 6.2% of the total.

323-2 As for marine fishery, in compare to the previous year (1999), the total production shows 1.11% decrease. This is mainly due to increase of marine capture fishery production. The total production increases 1.5 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 60,599 in 2000. "Non-powered boat" fishing establishments have decreased, reaching 213,432 in 2000. The "Outboard engine" of "Powered boat" fishing establishments category registered a 1.4-fold increase, from 71,185 in 1991 to 110,503 in 2000. "Inboard engine" fishing establishments increased from 46,186 in 1991 to 90,858 in 2000. This rate of increase is 1.9 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 71% and 78% 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 2002)

2) Target Species of Capture Fishery

323-5 Of the total of 3.81 million tons produced by the marine capture fishery in 2000 as shown in Table 3.2.2 scads (*Decapterus spp*.) has the highest production of 255 thousand tons, followed by Eastern Little Tuna *(Euthynus spp.)* of 250 thousand tons, prawns of 245 thousand tons, Skpijack *(Katsuwonus)* of 236 thousand tons, anchovies (*Stolephorus spp*.) of 173 thousand tons and tunas of 163 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 longideps*), which fell drastically in 1999, followed also in 2000. 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 2002).

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 2002).

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 29,950 in 2000. The number of anchored *bagan* fishing units has remained at 12,000 since 1990. On the other hand, movable *bagan* fishing units continued a slight increase, from 10,000 in 1990 to 13,000 in 2000. 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 222,000 in 2000.

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. The number of tuna long line fishing units has sometimes increased, sometimes decreased, fluctuating from 879 in 1990 to 2,870 in 2000. Purse seine fishing, which was introduced from foreign countries, has increased in number from 6,715 in 1990, and reached a peak of 10,542 in 2000.

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 10 years since 1991. In particular, cast net and Danish seine net, which need low capital and easy to be engaged in, have become around 5 times and 3 times increase in the 10 years, respectively. The production caught by gill nets has increased 43% in the same period. Otherwise, an

increase of capture production of scoop nets(147%), purse seine(138%), tuna long line(125%), payang(123%), skipjack pole & line(72%), movable bagan(60%), trolling(43%) and trap fishing(20%) respectively, are obvious in the table below. 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. Non-movable type bagan fishing, stow net and shell fish collection etc., 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. 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. It is presumable that the capture production has increased in trap fishing, since the fishing ground has been expanded to the offshore and deeper areas. 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 increase annually until 2000. 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 2002)

5) Fishermen

323-10 The number of marine fishermen was approximately 2.49 million in 2000, composed of 1.21 million full-time fishermen, 0.91 million part-time fishermen who mainly spend their time fishing, and 0.363 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

0.62 million, an increase from the 0.497 million in 1991. Of these, only 0.141 million were full-time fishermen, 0.37 million were part-time fishermen who mainly spend their time fishing, and 0.108 million were part-time fishermen who mainly spend their time in other occupations. In comparison to 1991, the sum of all types of fishermen registered a 47% increase.

323-11 The MMAF estimates that, throughout Indonesia, there are 5 million fishermen including unregistered ones who were not recorded in the statistics in 2002. Most of them are poor people who moved from large cities to find employment.

323-12 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 Bogol 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.230,000 (Maluku province) and Rp.510,000 (Batam Special Zone in Riau province) in 2001.(Report of the Ministry of Labor and Immigration 2001). The fishermen's household income is very low compared to the minimum wage regulated by provinces.

6) Fishery infrastructure

323-13 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)

323-14 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	＞ 60GT	100	200MT	30 Ha
Archipelago Fishing Port	15 - 60GT	75	50MT	10 Ha
Coastal Fishing Port	5 - 15GT	50	15-20MT	5 Ha
Fish Landing Place	＜ 5GT	20	5 MT	1 Ha

Source：Directorate of Capture Fisheries Infrastructure, MMAF

7) Fishing controlling and surveillance

323-15 The DG of Marine and Fisheries Resources Controlling 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 4 fishing patrol vessels, but this is not sufficient. So they cope by riding together in the patrol vessels of the navy and marine police (POLAIRUD). 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.

323-16 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.

323-17 The article no. 22 of the law 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 "*avic-avic*", 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

323-18 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.

323-19 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 *"avic-avic"* 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.

323-20 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 do not have a 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.

8) Subjects to be Considered in the Future

323-21 The development subjects are as follows:

- 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.
- 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.
- 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.
- 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.

- 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.

(2) Aquaculture

1) Aquaculture Production

323-22 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 2000 data reported in the National Fishery Statistics 2002.)

323-23 In 2000, the total production of freshwater and brackish water aquaculture and mariculture was approximately 995 thousand tons, with only 368 thousand tons from freshwater aquaculture, 430 thousand tons from brackish water aquaculture and 197 thousand tons from mariculture. As of 2000, aquaculture production occupied approximately 19.5% of the total fishery production of Indonesia. It has increased 1.8-fold in the 10 years since 1991. 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

323-24 In freshwater aquaculture, common carp has the top share, at 149 thousand tons, 40% of the total production in 2000, followed by tilapia at 11%, catfish at 8,7% and gouramy at 5,7%. Milkfish culture had the top share of brackish water aquaculture production at 52% in 2000, followed by black tiger prawn at 22%. 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 framing 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 newly 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

323-25 The number of aquaculture business units is approximately 1.2 million, and there were 1.88 million fish farmers in 1999. Compared to 1990, this is a 1.26-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 2000 is summarized in Table 3.2.5.

323-26 In comparison with aquaculture farming areas, brackish water aquaculture increased 1.4-fold in the 10 years from 1990. Freshwater pond culture also increased 1.26-fold in the same period, but decreased after 1997. 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

323-27 Java had the largest share, with 71% of the total number of pond culture units in Indonesia, as shown in Table 3.2.7. Sumatra had 16% of the total. Both Java and Sumatra had 87% of the total in Indonesia. Regarding brackish water aquaculture, Java had 49%, Sumatra 22.2% and Sulawesi 21.8%. 61.1% of mariculture was concentrated in Sulawesi, and 19.1% in Bali and Nusa Tenggara.

323-28 In 2000, common carp had a 41% share, tawes (*Puntius gonionotus*) 38%, tilapia 6.7%, nilam carp 1.7% catfish 8%, and gourami 3.2% of seed production in the whole Indonesia. The majority of freshwater aquaculture species are produced in Java, followed by Maluku-Irianjaya of 11%, Sumatra of 10.5%, and Sulawesi of 8.5%. 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 2000 as shown in Table 3.2.8.

323-29 In 2000, the production of edible sized fish (pond culture) was 154 thousand tons in Indonesia as a whole, consisting of common carp accounted for 41%, tilapia for 17%, catfishes for 16%, tawes for 8,4%, nilem carp for 6,5% As or characteristics by region, Sumatra and Java produce 97% 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 aquaculture production (grow-out) is greater than seed production. The supply of seed production in Sumatra is dependent on Java and other regions. Regional aquaculture pond production in 2000 is shown in Table 3.2.9.

323-30 Java, Sulawesi, and Sumatra are the three main production areas for brackish water aquaculture, in that order. Those 3 areas occupy 93% of the total production in Indonesia.

323-31 Mariculture production in Indonesia accounted for 197 thousand tons: 72.1% in Bali-Nusatenggara, followed by Sulawesi at 23.1% and Sumatera at 1,6%. Bali-Nusatenggara is the main region for mariculture.

5) Market Value of Aquaculture Fish

323-32 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.

323-33 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*, 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

323-34 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.

323-35 Consideration of natural water environment is also an important issue. Utilizing natural waters such as lakes, rivers and coastal marine waters for aquaculture can cause water pollution and fish disease occurrence often, if improper culture methods, such as concentration of culture cages and high density of rearing fish, are to be taken.

7) Fish Disease

323-36 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.

323-37 Large numbers of common carp have died from virus in Java in 2001 and 2002, it gives serious damage to 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

323-38 The following issues regarding aquaculture in Indonesia need to be considered:

- 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.
- Support systems for aquaculture such as extension services, micro credit etc., are limited and not well prepared: the improvement of the systems is needed.
- 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.
- 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 open water properly and continuously.
- 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.
- Along the trend of decentralization, public seed production centers for freshwater fish were transferred to provinces and districts for management. But there are lots of transferred 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.
- 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), died in 2001 and 2002 .

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

1) Consumption and Utilization of Fishery Products

323-39 In 2000, of the total marine fish production of 3.81 million tons, fresh fish

accounted for 2.32 million tons or 61% of the total. Dried or salted fish was 0.79 million tons (21%), boiled fish 0.133 million tons (3.4%), traditional fermented fish or fish seasoning 0.065 million tons (1.7%), smoked fish 0.063 million tons (1.65%), frozen fish 0.35 million tons (9.2%), canned fish 0.040 million tons (1.05%) and fish meal 5,781 tons (0.15%), respectively. In comparison with 1991, 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 2002)

323-40 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

323-41 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.

323-42 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.

323-43 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, 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 Article 64 of the Law of 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).

323-44 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

323-45 About 24% of fishery products are processed and 74% 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.

323-46 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.

323-47 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

- 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.
- It is also vital to promote the organizing of fishermen with the above measure.
- 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.
- 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.
- It is essential to improve the distribution system for fishery products by reviewing the role and function of the local wholesale market.
- Sanitary conditions and environment of fish landing facilities must be improved.
- 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

323-48 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.

323-49 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.

323-50 The Directorate of Service for Fishing Business under the MMAF establishes 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.

323-51 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

- Instructions for the promotion of formulating fishermen's organizations, activities of the organizations, and the management of finance are indispensable.
- 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.
- 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 FISHREIES 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 (2000-2004), 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 district (Kecamatan) and sub-district (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 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, the MMAF published "Marine and Fisheries Development Policy and Programs" in November 2002 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 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 Japanese Assistance to the Agriculture and Fisheries Sector in Indonesia

43-1 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.

43-2 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

Note: Ausl.: Australia, Germ.: Germany, Ausr.: Austria, UK.: United Kingdom
Source：Japan's ODA Annual Report 2000

43-3 The Japanese assistance to the agriculture and fisheries sector in Indonesian is shown in the following tables:

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

(Unit：hundred million Yen)

Year	Total amount of ODA	For Agriculture and Fisheries Sectors		
		Loan	Grant Aid	Technical Coop.
1970 – 1974	3,886.70	165.85	125.48	-*1
1975 – 1979	3,789.06	453.04	115.54	-*1
1980 – 1984	3,710.71	283.78	169.55	-*1
1985 – 1989	7,023.37	597.67	203.83	-*1
1990 – 1994	9,290.04	1,128.57	98.66	91.70
1995 – 1999	9,842.94	1,225.55	199.96	94.69
Total	37,542.82	3,854.46	913.02	186.39

*1：There is no separate data for the agriculture or fisheries sectors for the period from 1970 to 1983.
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)

Year	Total amount of ODA	Agriculture and Fisheries Sectors			Share out of Total Amount of ODA (%)
		Loan	Agri-sector To ODA（%）	Technical Cooperation	
1970 – 1974	777.34	33.17 (4)	25.10 (99)	-*1	7
1975 – 1979	757.81	90.61 (13)	23.11 (70)	-*1	15
1980 – 1984	742.14	56.76 (9)	33.91 (54)	-*1	12
1985 – 1989	1,404.67	119.53 (10)	40.77 (52)	-*1	11
1990 – 1994	1,858.01	225.71 (14)	19.73 (24)	22.95 (17)	14
1995 – 1999	1,968.59	245.11 (14)	39.99 (40)	18.94 (17)	15

*1：There is no date for agriculture and fisheries sector alone for the period from 1970 to 1983.

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

43-4 As shown in the above table, the total amount of Japanese ODA to Indonesia in the past 30 years amounts to 3.75 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%-15% with some yearly variations.

43-5 The number of Japanese-assisted projects in the agriculture and fisheries sectors during the 30 years from 1967 to 1999 are shown in Figure 4.3.1 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	10	16	2	28	0	1	29
Grant aid	52	6	1	59	2	2	63
Loan	8	65	0	73	0	8	81
Project type	26	1	5	32	5	3	40
Total	96	88	8	192	7	14	213

Source：Japan's ODA Annual Report and others

43-6 The total number of projects in the agriculture and fisheries sector is 213 with an average of 6 projects per year. The number of projects in the agriculture, livestock, and fishery sub-sectors is 192, 7, and 14, respectively. In the agriculture sub-sector, cooperation has been emphasized in the technical production aspects and agricultural infrastructure, with 96 projects for production technique, 88 agricultural infrastructure projects and 8 other projects.

43-7 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.

43-8 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 insitutional building, the training of related officers and farmers, and the operation and maintenance of irrigation facilities.

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

4.4.1 Asian Development Bank (ADB)

441-1 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 by improving the many relevant areas in the governance;
2) supporting the sustainable recovery and pro-poor growth by enabling and encouraging private sector development;
3) improving regional equity through balanced regional development, especially targeting the rural areas and less developed islands;
4) investing in human and social development and enhancing the role of women; and
5) strengthening environment management to ensure sustainable use of natural resources and prevent adverse environmental impact associated with development.

441-2 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.

441-3 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 25%.

441-4 For the time being, ADB's assistance will place higher priority on the improvement of existing projects than on new large-scale projects.

441-5 The list of ADB's on-going loan projects is shown in Table 4.4.1.

4.4.2 World Bank

442-1 The World Bank launched the Country Assistant Strategy for Indonesia in February 2001. The basic strategies contained in it are:

(1) supporting Indonesia's political and economic transition in a highly uncertain environment;

(2) under the overarching goals of reducing poverty and vulnerability in a more open and decentralized environment, support for the following issues:

- sustaining economic recovery and promoting broad-based growth;
- building national institutions for an accountable government, which includes legal and judicial reforms, better public financial management;
- delivering better public services for the poor.

442-2 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. 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.

442-3 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.

442-4 The list of World Bank's on-going loan projects is shown in Table 4.4.2.

4.4.3 Food and Agriculture Organization of United Nations (FAO)

443-1 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 4.4.3). The Food Safety Program is concerned with the safety of agricultural products and foods.

4.4.4 Other Donors

444-1 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

444-2 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.

444-3 Major assistance in the agriculture and fisheries sector is to promote funds for community development.

444-4 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.

444-5 (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 (refer to Table 4.4.3).
  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 is 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.
- 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.

4.5 Other Relevant Organizations

45-1 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, vii) the State Ministry of Cooperative and Small & Medium Enterprises, viii) the MOIT, ix) the MOHA, and x) the State Ministry of Women Empowerment. The organizational charts of those ministries are shown in Attachment 5. 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).

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. 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.

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.

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 various institutional systems in line with the decentralization policy
2) Development of livestock industry utilizing local resources

(1) Support for Policy and Various Institutional Systems 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, the per-capita consumption of protein in 1999 from meat, egg, and milk was 1.86g, 0.74g, and 0.30g respectively, while in 2001 it is estimated that they increased to 2.40g (129%), 1.10g (149%), and 0.57g (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) Supporting the promotion of turnover of O&M for irrigation facilities to WUAs and local government.
2) Strengthening of WUAs and local government 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) Supporting the Promotion of Turnover of O&M systems for Irrigation

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 these 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.

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 under the institutional framework indicated by WATSAL.

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

(2) Strengthening of WUAs and Local Government 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 carry out 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 1999 was about 18kg, which accounts for 60% 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 system for sustainable development of coastal and inland open water capture fishery and fish culture
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 System for Sustainable Development of Coastal and Inland Open Water Capture Fishery and Fish Culture

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 It is necessary to introduce an integrated management system conducted by central and regional levels, in order to evaluate fishery resource potential and utilize it in sustainable manner under the control of the central government, provinces and districts. Based upon the integrated guideline, 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.

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 Slawesi, 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 industry 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 Investment Incentives

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 Industry 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 Recommendations 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 fishery products
2) Recommendation on the establishment of basic market information systems for agricultural and fishery products

(1) Recommendation on the Improvement of Market Institutions for Agricultural and Fishery 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 Fishery 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.

Tables

Table 2.1.1 Gross Domestic Product at Current Market Prices by Industrial Origin, 1996-2002

Unit: Billion Rupiah

Industrial Origin	1996		1997		1998		1999		2000		2001*)		2002**)	
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%**	**246,300**	**17.0%**	**281,330**	**17.5%**
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	8.7%	141,140	8.8%
b. Non-food Crops	14,430	2.7%	16,450	2.6%	33,290	3.5%	35,970	3.3%	33,740	2.7%	37,490	2.6%	41,920	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%	30,440	2.1%	34,810	2.2%
d. Forestry	8,170	1.5%	9,810	1.6%	11,700	1.2%	13,800	1.3%	14,950	1.2%	15,650	1.1%	16,850	1.0%
e. Fishery	9,040	1.7%	10,880	1.7%	20,750	2.2%	25,930	2.4%	29,510	2.3%	36,650	2.5%	46,610	2.9%
2. Mining and Quarrying	**46,090**	**8.7%**	**55,560**	**8.9%**	**120,330**	**12.6%**	**109,930**	**10.0%**	**175,260**	**13.9%**	**191,760**	**13.2%**	**191,870**	**11.9%**
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%	131,880	9.1%	131,660	8.2%
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%	45,690	3.2%	43,480	2.7%
c. Quarrying	8,870	1.7%	10,330	1.6%	9,980	1.0%	9,800	0.9%	11,550	0.9%	14,190	1.0%	16,690	1.0%
3. Manufacturing Industry	**136,430**	**25.6%**	**168,180**	**26.8%**	**238,900**	**25.0%**	**285,870**	**26.0%**	**314,920**	**24.9%**	**362,030**	**25.0%**	**402,600**	**25.0%**
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%	56,140	3.9%	56,680	3.5%
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%	305,890	21.1%	345,920	21.5%
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%**	**21,180**	**1.5%**	**29,100**	**1.8%**
a. Electricity	5,660	1.1%	6,450	1.0%	9,330	1.0%	11,200	1.0%	13,800	1.1%	17,770	1.2%	25,030	1.6%
b. Gas	230	0.0%	290	0.0%	310	0.0%	350	0.0%	460	0.0%	620	0.0%	830	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%	2,790	0.2%	3,240	0.2%
5. Construction	**42,020**	**7.9%**	**46,680**	**7.4%**	**61,760**	**6.5%**	**67,620**	**6.1%**	**76,570**	**6.1%**	**85,260**	**5.9%**	**92,370**	**5.7%**
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%**	**234,260**	**16.2%**	**258,870**	**16.1%**
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%	188,000	13.0%	205,790	12.8%
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%
c. Restaurant	14,500	2.7%	18,150	2.9%	24,690	2.6%	29,320	2.7%	32,960	2.6%	38,580	2.7%	44,440	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%**	**75,800**	**5.2%**	**97,340**	**6.0%**
a. Transport	29,250	5.5%	31,500	5.0%	41,840	4.4%	42,740	3.9%	47,910	3.8%	59,460	4.1%	72,230	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%
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%**	**91,440**	**6.3%**	**105,620**	**6.6%**
a. Bank	17,710	3.3%	20,300	3.2%	25,820	2.7%	24,430	2.2%	28,550	2.3%	33,060	2.3%	39,830	2.5%
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%	8,440	0.6%	9,320	0.6%
c. Services Allied to Financial	330	0.1%	370	0.1%	480	0.1%	520	0.0%	620	0.0%	730	0.1%	800	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%	29,580	2.0%	33,170	2.1%
e. Business Services	8,480	1.6%	11,440	1.8%	15,040	1.6%	15,730	1.4%	17,200	1.4%	19,620	1.4%	22,500	1.4%
9. Services	**46,300**	**8.7%**	**55,960**	**8.9%**	**82,090**	**8.6%**	**104,960**	**9.5%**	**121,870**	**9.6%**	**141,360**	**9.8%**	**150,960**	**9.4%**
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%
b. Private	16,550	3.1%	23,830	3.8%	41,450	4.3%	48,210	4.4%	52,410	4.1%	59,510	4.1%	67,660	4.2%
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%**	**1,449,400**	**100.0%**	**1,610,010**	**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%**	**1,261,380**	**87.0%**	**1,421,680**	**88.3%**

*)Preliminary Figures **)Very Preliminary Figures

Source: Table 11.1.1 Statistical Yearbook 2002, Central Bureau of Statistics of Indonesia (http://www.bps.go.id)

Table 2.1.2 Trend of Export by Industrial Origin 1997-2000

(Unit : US$ Million)

Industrial Origin	1997		1998		1999		2000		2001 Jan. to July	
	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%	3,725	91.6%
Oil Products	1,303	-14.1%	708	-45.7%	918	29.7%	1,652	80.0%	742	54.6%
Gas	4,840	7.7%	3,816	-21.2%	4,357	14.2%	6,625	52.1%	3,612	88.8%
Total	**11,623**	**-0.8%**	**7,873**	**-32.3%**	**9,792**	**24.4%**	**14,367**	**46.7%**	**8,079**	**86.3%**
II. Agricultural Products										
Cofee	503	-14.6%	579	15.1%	458	-20.9%	312	-31.9%	101	-22.9%
Shrimp	1,008	-0.8%	1,007	-0.1%	888	-11.8%	1,003	13.0%	575	65.7%
Tea	84	22.9%	108	28.6%	92	-14.8%	108	17.4%	60	57.9%
Spices	230	45.6%	278	20.9%	374	34.5%	315	-15.8%	93	-18.4%
Fish and Other Related	424	-1.4%	390	-8.0%	403	3.3%	359	-10.9%	206	62.2%
Total	**3,272**	**12.3%**	**3,653**	**11.6%**	**2,901**	**-20.6%**	**2,709**	**-6.6%**	**1,035**	**36.7%**
III. Industrial Goods										
Plywood	3,411	-5.1%	2,078	-39.1%	2,256	8.6%	1,989	-11.8%	1,057	48.5%
Lumbering	380	-19.7%	164	-56.8%	296	80.5%	331	11.8%	162	37.3%
Tin	275	-0.4%	281	2.2%	250	-11.0%	233	-6.8%	130	71.1%
Alminium	400	-5.0%	351	-12.3%	278	-20.8%	452	62.6%	255	65.6%
Nickel	173	-21.0%	108	-37.6%	191	76.9%	268	40.3%	382	315.2%
Steel	637	12.1%	787	23.5%	757	-3.8%	834	10.2%	n.a	-
Germents	2,876	-19.6%	2,588	-10.0%	3,818	47.5%	4,703	23.2%	2,839	68.9%
Textile Goods, Threads,& Other Related	4,534	52.4%	4,803	5.9%	3,418	-28.8%	3,634	6.3%	1,873	51.7%
Processed Rubber	1,929	-13.4%	1,548	-19.8%	1,236	-20.2%	1,320	6.8%	704	50.7%
Palm Oil	1,446	75.3%	745	-48.5%	1,114	49.5%	1,087	-2.4%	486	32.4%
Electronical Appliance	3,631	2.5%	3,279	-9.7%	3,419	4.3%	6,758	97.7%	1,617	57.0%
Processed Food	837	-13.0%	756	-9.7%	958	26.7%	955	-0.3%	546	71.7%
Cements	33	73.7%	85	157.6%	137	61.2%	143	4.4%	101	74.1%
Furniture & Parts	755	-20.2%	354	-53.1%	1,231	247.7%	1,508	22.5%	n.a	-
Chemical Goods	721	30.6%	1,008	39.8%	986	-2.2%	1,287	30.5%	684	58.7%
Ferilizaer	312	15.1%	169	-45.8%	187	10.7%	212	13.4%	102	27.5%
Leather Goods	138	109.1%	174	26.1%	91	-47.7%	112	23.1%	65	62.5%
Paper Materials	938	-1.8%	1,426	52.0%	1,966	37.9%	2,291	16.5%	1,049	30.6%
Others	8,103	15.6%	10,299	27.1%	7,729	-25.0%	10,605	37.2%	15,649	-8.2%
Footwear	1,531	-30.3%	1,206	-21.2%	1,602	32.8%	1,672	4.4%	986	-6.5%
Total	**34,846**	**8.5%**	**34,593**	**-0.7%**	**33,332**	**-3.6%**	**42,003**	**26.0%**	**28,687**	**18.1%**
Ⅳ.Mining Products										
Copper Ore	1,497	-14.4%	1,307	-12.7%	1,156	-11.6%	1,621	40.2%	1,208	243.2%
Nickel Ore	38	-11.6%	27	-28.9%	26	-3.7%	42	61.5%	32	111.3%
Coal	1,485	32.5%	1,346	-9.4%	1,314	-2.4%	1,276	-2.9%	862	113.9%
Total	**3,107**	**1.7%**	**2,704**	**-13.0%**	**2,626**	**-2.9%**	**3,041**	**15.8%**	**2,200**	**173.0%**
Total Value	**53,444**	**7.3%**	**48,848**	**-8.6%**	**48,665**	**-0.4%**	**62,124**	**27.7%**	**40,001**	**32.3%**

Source: Central Bureau of Statistics of Indonesia (http://www.bps.go.id)

Table 2.2.1 State Budget (FY 2002 and FY2003)

(in billion rupiah)

	2002					2003			
	Proposed Budget	Approved Budget		Realization		Proposed Budget	Approved Budget		Realization up to March 31
Total Revenue and Grants	**289,432**	**301,874**	**87.8%**	**300,127**	**91.7%**	**327,834**	**336,156**	**90.7%**	**68,648**
I. Domestic revenue	**289,432**	**301,874**	**87.8%**	**299,831**	**91.7%**	**327,834**	**336,156**	**90.7%**	**68,618**
1. Tax revenue	**216,785**	**219,628**	**63.8%**	**210,970**	**64.5%**	**260,785**	**254,140**	**68.6%**	**56,567**
a. Domestic taxes	204,205	207,029	60.2%	200,340	61.3%	246,528	241,742	65.2%	54,082
i. Income tax	101,874	104,497	30.4%	101,717	31.1%	124,704	120,925	32.6%	32,573
1. Oil and gas	14,559	15,682	4.6%	17,215	5.3%	12,551	14,776	4.0%	4,842
2. Non-oil	87,315	88,815	25.8%	84,502	25.8%	112,153	106,149	28.6%	27,730
ii. Value added tax	69,900	70,100	20.4%	65,853	20.1%	82,133	80,790	21.8%	15,346
iii. Land and building tax	5,924	5,924	1.7%	6,347	1.9%	7,463	7,524	2.0%	829
iv. Duties on land & building transf	2,205	2,205	0.6%	1,614	0.5%	2,411	2,402	0.6%	412
v. Excise	22,353	22,353	6.5%	23,341	7.1%	27,646	27,946	7.5%	5,042
vi. Other	1,950	1,950	0.6%	1,468	0.4%	2,142	2,157	0.6%	396
b. International trade taxes	12,579	12,599	3.7%	10,630	3.2%	14,257	12,398	3.3%	2,485
i. Import duties	12,249	12,249	3.6%	10,399	3.2%	13,823	11,960	3.2%	2,436
ii. Export duties	330	350	0.1%	231	0.1%	434	438	0.1%	49
2. Non tax revenue	**72,648**	**82,247**	**23.9%**	**88,861**	**27.2%**	**67,049**	**82,015**	**22.1%**	**12,051**
a. Natural resources	55,850	63,195	18.4%	64,958	19.9%	49,564	59,396	16.0%	8,432
i. Oil	37,934	44,013	12.8%	48,802	14.9%	33,110	39,911	10.8%	3,674
ii. Gas	13,601	14,524	4.2%	10,949	3.3%	13,494	16,285	4.4%	4,288
iii. Mining	1,111	1,340	0.4%	1,850	0.6%	1,483	1,483	0.4%	395
iv. Forestry	2,913	3,026	0.9%	3,155	1.0%	1,186	1,268	0.3%	0
v. Fishery	292	292	0.1%	203	0.1%	292	450	0.1%	75
vi. Other	-	-	-	-	-	-	-	-	-
b. Profit transfer from SOE's	8,214	10,351	3.0%	10,301	3.1%	8,512	10,414	2.8%	66
c. Other	8,584	8,700	2.5%	13,602	4.2%	8,972	12,206	3.3%	3,553
II. Grants	**-**	**-**	**-**	**296**	**-**	**-**	**-**	**-**	**30**
Total expenditure	**332,465**	**344,009**	**100%**	**327,082**	**100%**	**354,098**	**370,592**	**100%**	**64,954**
I. Central Government Expenditure	**242,125**	**246,040**	**71.5%**	**228,636**	**69.9%**	**240,881**	**253,714**	**68.5%**	**35,942**
1. Current expenditure	**194,978**	**193,741**	**56.3%**	**188,455**	**57.6%**	**186,381**	**188,584**	**50.9%**	**32,040**
a. Personnel	40,665	41,298	12.0%	39,474	12.1%	51,925	50,241	13.6%	11,981
b. Good and services	11,549	12,863	3.7%	11,582	3.5%	15,387	15,427	4.2%	1,706
c. Interest payment	86,981	88,500	25.7%	90,088	27.5%	80,887	81,975	22.1%	16,618
i. Domestic interest	59,616	59,527	17.3%	64,421	19.7%	55,094	55,180	14.9%	12,131
ii. External interest	27,366	28,975	8.4%	25,666	7.8%	25,793	26,795	7.2%	4,488
d. Subsidies	46,239	41,586	12.1%	40,006	12.2%	25,339	25,465	6.9%	1,310
i. Oil subsidies	32,289	30,377	8.8%	31,162	9.5%	13,559	13,210	3.6%	771
ii. Non oil subsidies	13,950	11,209	3.3%	8,845	2.7%	11,780	12,255	3.3%	539
e. Other current expenditure	9,543	9,494	2.8%	7,304	2.2%	12,842	15,476	4.2%	426
2. Development expenditure	**47,147**	**52,299**	**15.2%**	**40,181**	**12.3%**	**54,500**	**65,130**	**17.6%**	**3,902**
a. Rupiah financing	22,752	26,469	7.7%	27,639	8.5%	36,230	46,230	12.5%	1,609
b. Project aid	24,395	25,830	7.5%	12,542	3.8%	18,270	18,900	5.1%	2,293
II. Balance Budget	**90,340**	**94,532**	**27.5%**	**94,688**	**28.9%**	**103,591**	**107,491**	**29.0%**	**26,674**
1. Revenue sharing	23,204	24,600	7.2%	24,918	7.6%	25,853	27,896	7.5%	1,149
2. General allocation fund	66,364	69,114	20.1%	69,135	21.1%	75,414	76,978	20.8%	25,525
3. Specific allocation fund	772	817	0.2%	636	0.2%	2,324	2,617	0.7%	-
III Special Outonomy	**-**	**3,437**	**1.0%**	**3,759**	**1.1%**	**9,625**	**9,387**	**2.5%**	**2,338**
Primary Balance {A-(B-BI1.c)}	**43,949**	**46,366**		**63,133**		**54,624**	**47,539**		**20,826**
Overall Balance (A - B)	**-43,033**	**-42,134**		**-26,955**		**-26,263**	**-34,436**		**-4,208**
Financing		**42,135**	**12.2%**	**26,956**	**8.2%**	**26,263**	**34,436**	**7.0%**	**-4,208**
I. Domestic financing	**43,033**	**23,501**	**6.8%**	**19,659**	**6.0%**	**16,852**	**22,450**	**3.8%**	**-2,463**
1. Domestic bank financing	25,434	-	-	-5,585	-1.7%	8,500	8,500	-	685
2. Non domestic bank financing	-	23,501	6.8%	25,244	7.7%	8,352	13,950	3.8%	3,147
a. Privatization proceeds	25,434	3,952	1.1%	7,635	2.3%	8,000	8,000	2.2%	-
b. Assests recovery	3,952	19,549	5.7%	19,549	6.0%	12,000	18,000	4.9%	3,000
c. Government Bonds	21,482	-	0.0%	-1,939	-0.6%	-11,648	-12,050	-3.3%	-6,147
i. Government bonds issues	-	-	-	1,991	0.6%	7,000	7,700	2.1%	-
ii. Amortization on domestic bond	-	-	-	-3,931	-1.2%	-7,466	-6,166	-1.7%	-6,147
iii. Government bonds buy back	-	-	-	-	-	-11,183	-13,584	-3.7%	-
d. Government Bonds	-	-	-	-	-			-	
II. Foreign financning	**17,599**	**18,634**	**5.4%**	**7,297**	**2.2%**	**9,412**	**11,986**	**3.2%**	**-1,746**
1. Withdrawing	59,123	35,359	10.3%	19,288	5.9%	26,100	29,250	7.9%	2,391
a. Program aid	34,728	9,529	2.8%	7,042	2.2%	7,830	10,350	2.8%	128
b. Project aid	24,395	25,830	7.5%	12,246	3.7%	18,270	18,900	5.1%	2,263
2. Amortization	-41,524	-16,726	-4.9%	-11,991	-3.7%	-16,688	-17,264	-4.7%	-4,137

Table 2.2.2 Expenditures for Development Based on Sector and Sub-Sector, 2003

(Rp. Million)

Items	APBN (National Budget) 2003			
	Pure Rp.	Foreign Loan	Total	Distribution
01 INDUSTRY	**392,500.0**	**675,610.9**	**1,068,110.9**	**1.64%**
02 AGRICULTURE, FORESTRY, MARINE AND FISHERY	**3,638,650.0**	**1,092,211.2**	**4,730,861.2**	**7.26%**
1 Sub-Sector Agriculture	2,463,000.0	837,132.9	3,300,132.9	5.07%
2 Sub-Sector Forestry	122,650.0	71,545.5	194,195.5	0.30%
3 Sub-Sector Marine and Fishery	1,053,000.0	183,532.8	1,236,532.8	1.90%
03 WATER RESOURCES	**2,490,000.0**	**2,273,618.3**	**4,763,618.3**	**7.31%**
1 Sub-Sector Water Resources Development and Management	1,440,000.0	741,812.1	2,181,812.1	3.35%
2 Sub-Sector Water Sources Development and Management	1,050,000.0	1,531,806.2	2,581,806.2	3.96%
04 MAN POWER	**323,500.0**	**24,206.9**	**347,706.9**	**0.53%**
05 TRADE, DEVELOPMENT OF NATIONAL BUSINESS, FINANCE AND COOPERATIVE	**1,597,000.0**	**0.0**	**1,597,000.0**	**2.45%**
1 Sub-Sector Domestic Trade	98,000.0	0.0	98,000.0	**0.15%**
2 Sub-Sector Foreign Trading	264,000.0	0.0	264,000.0	0.41%
3 Sub-Sector National Business Development	125,500.0	0.0	125,500.0	0.19%
4 Sub-Sector Finance	104,000.0	0.0	104,000.0	0.16%
5 Sub-Sector Cooperative and Micro, Small and Mid Business Enterprises	1,005,500.0	0.0	1,005,500.0	1.54%
06 TRANSPORTATION, METEOROLOGY AND GEOPHYSICS	**5,276,622.3**	**3,775,478.8**	**9,052,101.1**	**13.90%**
1 Sub-Sector Road Infrastructure	3,298,622.3	1,295,046.2	4,593,668.5	7.05%
2 Sub-Sector Land Transportation	930,250.0	958,936.3	1,889,186.3	2.90%
3 Sub-Sector Sea Transportation	516,000.0	790,484.2	1,306,484.2	2.01%
4 Sub-Sector Air Transportation	465,000.0	710,240.7	1,175,240.7	1.80%
5 Sub-Sector Meteorology, Geography, Search and Rescue	66,750.0	20,771.4	87,521.4	0.13%
07 MINING AND ENERGY	**1,453,500.0**	**1,729,960.9**	**3,183,460.9**	**4.89%**
1 Sub-Sector Mining	131,000.0	0.0	131,000.0	0.20%
2 Sub-Sector Energy	1,322,500.0	1,729,960.9	3,052,460.9	4.69%
08 TOURISM, POS, TELECOMMUNICATION AND INFORMATION	**287,500.0**	**150,089.0**	**437,589.0**	**0.67%**
1 Sub-Sector Tourism	231,500.0	13,351.0	244,851.0	0.38%
2 Sub-Sector Post, Telecommunication and Information	56,000.0	136,738.0	192,738.0	0.30%
09 REGIONAL DEVELOPMENT	**1,077,150.0**	**1,901,545.0**	**2,978,695.0**	**4.57%**
1 Sub-Sector Regional Autonomy	142,750.0	40,137.9	182,887.9	0.28%
2 Sub-Sector Regional Development and Community Empowerment	934,400.0	1,861,407.1	2,795,807.1	4.29%
10 NATURAL RESOURCES, LIVING ENVIRONMENT AND SPATIAL MANAGEMENT	**388,150.0**	**122,495.2**	**510,645.2**	**0.78%**
1 Sub-Sector Natural Resources and Living Environment	262,650.0	119,379.4	382,029.4	0.59%
2 Sub-Sector Spatial Management Land Affairs	125,500.0	3,115.8	128,615.8	0.20%
11 EDUCTION, NATIONAL CULTURE, YOUTH AND SPORTS	**12,816,250.0**	**2,241,858.1**	**15,058,108.1**	**23.12%**
1 Sub-Sector Education	11,915,500.0	2,223,304.0	14,138,804.0	21.71%
2 Sub-Sector Extra Curricular Education	628,500.0	6,111.3	634,611.3	0.97%
3 Sub-Sector National Culture	101,250.0	12,442.8	113,692.8	0.17%
4 Sub-Sector Youth and Sports	171,000.0	0.0	171,000.0	0.26%
12 POPULATION AND FAMILY	**379,050.0**	**71,822.1**	**450,872.1**	**0.69%**
13 SOCIAL WELFARE, HEALTH, AND WOMEN EMPOWERMENT	**5,703,750.0**	**890,296.0**	**6,594,046.0**	**10.12%**
1 Sub-Sector Social Welfare	1,732,400.0	0.0	1,732,400.0	2.66%
2 Sub-Sector Health	3,910,000.0	890,296.0	4,800,296.0	7.37%
3 Sub-Sector Women Empowerment	61,350.0	0.0	61,350.0	0.09%
14 HOUSING AND SETTLEMENTS	**1,444,309.8**	**409,155.0**	**1,853,464.8**	**2.85%**
1 Sub-Sector Housing	540,115.7	296,017.2	836,132.9	1.28%
2 Sub-Sector Settlements	904,194.1	113,137.8	1,017,331.9	1.56%
15 RELIGION	**133,500.0**	**0.0**	**133,500.0**	**0.20%**
1 Sub-Sector Religion Live Service	75,445.0	0.0	75,445.0	0.12%
2 Sub-Sector Religion Education Development	58,055.0	0.0	58,055.0	0.09%
16 SCIENCE AND TECHNOLOGY	**963,400.0**	**149,033.5**	**1,112,433.5**	**1.71%**
1 Sub-Sector Science and Technology Service and Application	180,550.0	35,622.4	216,172.4	0.33%
2 Sub-Sector Research and Development of Science and Technology	294,050.0	85,807.2	379,857.2	0.58%
3 Sub-Sector Science and Technology Infrastructure and Facilities Institution	181,300.0	27,603.9	208,903.9	0.32%
4 Sub-Sector Statistics	307,500.0	0.0	307,500.0	0.47%
17 LEGAL	**937,550.0**	**82,910.2**	**1,020,460.2**	**1.57%**
1 Sub-Sector National Law Development	46,200.0	0.0	46,200.0	0.07%
2 Sub-Sector Law Apparatus Development	891,350.0	82,910.2	974,260.2	1.50%
18 STATE APPARATUS AND SUPERVISION	**2,383,396.3**	**335,920.0**	**2,719,316.3**	**4.18%**
1 Sub-Sector State Apparatus	2,320,596.3	335,920.0	2,656,516.3	4.08%
2 Sub-Sector System Efficiency and Control Implementation	62,800.0	0.0	62,800.0	0.10%
19 HOME POLITICS, FOREIGN RELATION, INFORMATION AND COMMUNICATION	**278,021.6**	**48,747.5**	**326,769.1**	**0.50%**
1 Sub-Sector Home Politics	35,000.0	0.0	35,000.0	0.05%
2 Sub-Sector Foreign Relation	41,300.0	0.0	41,300.0	0.06%
3 Sub-Sector Information and Communication	201,721.6	48,747.5	250,469.1	0.38%
20 DEFENCE AND SECURITY	**4,266,000.0**	**2,925,041.4**	**7,191,041.4**	**11.04%**
1 Sub-Sector Defence	2,991,000.0	2,175,465.5	5,166,465.5	7.93%
2 Sub-Sector Security	1,275,000.0	749,575.9	2,024,575.9	3.11%
Total	**46,229,800.0**	**18,900,000.0**	**65,129,800.0**	**100.00%**

Source: Ministry of Finance

Table 2.2.3 Trend of External・Domestic/Public・Private Debts 1994-2000

		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)
Year 1994	Month 3	2,144	178,136	83,086	-	-	-	-	n.a.	n.a.	129,107	60,218
	6	2,160	184,414	85,377	-	-	-	-	n.a.	n.a.	134,724	62,372
	9	2,181	195,387	89,586	-	-	-	-	n.a.	n.a.	140,443	64,394
	12	2,200	209,979	95,445	-	-	-	-	83,347	37,885	140,114	63,688
1995	3	2,219	217,202	97,883	-	-	-	-	n.a.	n.a.	149,956	67,578
	6	2,246	230,249	102,515	-	-	-	-	n.a.	n.a.	157,402	70,081
	9	2,276	245,805	107,999	-	-	-	-	n.a.	n.a.	150,601	66,169
	12	2,308	258,364	111,943	-	-	-	-	111,347	48,244	148,658	64,410
1996	3	2,338	265,599	113,601	-	-	-	-	111,862	47,845	148,496	63,514
	6	2,342	280,592	119,809	-	-	-	-	n.a.	n.a.	144,298	61,613
	9	2,340	294,719	125,948	-	-	-	-	n.a.	n.a.	142,864	61,053
	12	2,383	314,816	132,109	-	-	-	-	130,750	54,868	140,704	59,045
1997	3	2,419	326,720	135,064	-	-	-	-	146,369	60,508	136,156	56,286
	6	2,450	350,648	143,122	-	-	-	-	159,152	64,960	141,926	57,929
	9	3,275	397,947	121,511	-	-	-	-	213,658	65,239	184,766	56,417
	12	4,650	407,339	87,600	-	-	-	-	334,577	71,952	269,049	57,860
1998	3	8,325	521,931	62,694	n.a.	n.a.	-	-	696,211	83,629	482,867	58,002
	6	14,900	699,580	46,952	n.a.	n.a.	-	-	1,269,420	85,196	881,708	59,175
	9	10,700	593,498	55,467	n.a.	n.a.	80,000	7,477	889,352	83,117	668,911	62,515
	12	8,025	539,585	67,238	n.a.	n.a.	100,000	12,461	674,164	84,008	573,579	71,474
1999	3	8,685	393,114	45,264	n.a.	n.a.	164,500	18,941	707,871	81,505	629,888	72,526
	6	6,726	281,811	41,899	n.a.	n.a.	322,100	47,889	499,453	74,257	501,343	74,538
	9	8,386	292,820	34,918	234,456	27,958	322,100	38,409	596,194	71,094	661,060	78,829
	12	7,100	245,277	34,546	235,787	33,209	510,070	71,841	512,869	72,235	573,140	80,724
2000	3	7,590	246,551	32,484	223,337	29,425	510,070	67,203	523,642	68,991	606,987	79,972
	6	8,735	261,779	29,969	284,235	32,540	610,190	69,856	591,167	67,678	711,745	81,482
	9	8,780	262,007	29,841	258,266	29,415	640,397	72,938	574,177	65,396	706,070	80,418
	12	9,380	287,240	30,623	286,278	30,520	660,070	70,370	574,177	66,777	750,062	79,964

Source: Bank Indonesia, Indonesian Financial Statistics (http://www.bi.go.id)

Note: 1) The issue of government bonds was commenced on 25th of September in 1998.
2) In the records up to December in 1997, the external debts for the private sector exculude corporate bonds.
3) The data of March and September in 2002 in the records for IBRA apply the data as of 15th of March and 31st of August as the alternative.
4) As regards the data of December in 1999 and March and June in 2000 in the records for IBRA, the debt amounts, which the IBRA calculated with the exchange rate of 7,000Rp for 1 dollar, are converted to the amounts with the exchange rate of Bank of Indonesia. With respect to the data of September and December in 2000, however, it was not possible to recalculate the debt amount with the month-end exchange rate of Bank Indonesia.

Table 3.1.1 Land Use by Province (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 3.1.2 Transition of Land Utilization

(Unit: 1,000 ha)

	3 years from 1995 to 1997				3 years from 1998 to 2000				Balance
	1995	1996	1997	Average	1998	1999	2000	Average	2000-1995
Wet Land	8,484,700	8,519,100	8,490,000	**8,498,000**	8,504,900	8,106,400	7,787,300	**8,133,000**	**-365,000**
House Compounds and Surroundings	5,155,400	5,291,400	5,331,500	**5,259,000**	5,516,400	5,131,700	5,234,500	**5,294,000**	**35,000**
Dry Land / Garden	8,244,900	8,383,600	8,382,300	**8,337,000**	8,568,700	9,136,700	9,291,400	**8,999,000**	**662,000**
Shifting Cultivation	3,123,600	3,179,200	3,225,900	**3,176,000**	3,247,200	3,632,000	3,645,900	**3,508,000**	**332,000**
Meadows	1,889,400	1,953,100	2,056,300	**1,966,000**	2,017,000	2,424,500	2,208,900	**2,217,000**	**251,000**
Swamps	3,883,000	4,172,900	4,270,500	**4,109,000**	4,268,700	4,080,200	4,405,900	**4,252,000**	**143,000**
Dyke	422,600	438,500	467,300	**443,000**	481,300	454,300	492,900	**476,000**	**33,000**
Water Pond	182,200	183,900	168,700	**178,000**	168,400	188,600	184,400	**180,000**	**2,000**
Fallow Land	6,967,900	7,335,600	7,577,900	**7,294,000**	7,720,300	10,260,500	9,720,400	**9,234,000**	**1,940,000**
Wood Land	9,555,000	9,446,100	9,133,600	**9,378,000**	9,072,400	8,905,200	8,803,300	**8,927,000**	**-451,000**
Agricultural Estates	13,835,700	14,488,400	15,016,000	**14,447,000**	16,461,000	16,543,700	16,714,600	**16,573,000**	**2,126,000**
Total	**61,744,400**	**63,391,800**	**64,120,000**	**63,085,000**	**66,026,300**	**68,863,800**	**68,489,500**	**67,793,000**	**4,708,000**

Source: Agricultural Statistics.

Table 3.1.3 Population and Density by Province

Province	Population (000 persons)				Population Density (persons/square km)	
	2000 [1]		2002 [2]		2000	2002 [3]
1. Nanggroe Aceh Darussalam	3,929		4,041		76	78
2. Sumatera Utara	11,642		11,942		158	162
3. Sumatera Barat	4,249		4,298		99	100
4. Riau	4,948		5,383		52	57
5. Jambi	2,407		2,494		45	47
6. Sumatera Selatan	6,899		7,226		74	78
7. Bengkulu	1,564		1,656		79	84
8. Lampung	6,731		6,889		191	195
9. Kep. Bangka Belitung [4]	900		917		56	57
Sumatera	**43,269**	**21.0%**	**44,846**	**21.2%**	**90**	**93**
10. DKI Jakarta	8,361		8,382		12,635	12,623
11. Jawa Barat	35,724		37,157		1,033	1,074
12. Jawa Tengah	31,223		31,786		959	977
13. DI. Yogyakarta	3,121		3,163		980	993
14. Jawa Timur	34,766		35,225		726	735
15. Banten [4]	8,098		8,619		936	996
Jawa	**121,293**	**58.9%**	**124,332**	**58.6%**	**951**	**975**
16. Bali	3,150		3,230		559	573
17. NTB	4,009		4,152		199	206
18. NTT	3,823		3,945		83	83
Bali & Nusa Tenggara	**10,982**	**5.3%**	**11,327**	**5.3%**	**152**	**155**
19. Kalimantan Barat	4,016		4,198		27	29
20. Kalimantan Tengah	1,855		1,966		12	13
21. Kalimantan Selatan	2,984		3,068		69	70
22. Kalimantan Timur	2,452		2,589		11	11
Kalimantan	**11,307**	**5.5%**	**11,821**	**5.6%**	**20**	**21**
23. Sulawesi Utara	2,001		2,052		132	134
24. Sulawesi Tengah	2,176		2,287		35	36
25. Sulawesi Selatan	8,051		8,284		129	133
26. Sulawesi Tenggara	1,820		1,935		48	51
27. Gorontalo [4]	833		859		68	70
Sulawesi	**14,881**	**7.2%**	**15,417**	**7.3%**	**78**	**80**
28. Maluku	1,163		1,165		26	25
29. Maluku Utara [5]	732		739		25	24
30. Papua	2,214		2,356		6	6
Maluku & Papua	**4,109**	**2.0%**	**4,260**	**2.0%**	**9**	**10**
Whole Country	**205,841**	**100%**	**212,003**	**100%**	**109**	**112**

Source: Table 3.1.1 and 3.1.2 Statistical Year Book of Indonesia 2002.

1) Including 2,283,981 persons non responed, and 2,317,216 persons (estimation).
2) Preliminary figure of population estimation, calculated using mathematical methods.
3) Excluding population without permanent residence.
4) Kep. Bangka Belitung and Gorontalo were formed in 2000.
5) 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 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 3.1.6 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	76	11,355,634	403,866	59	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	74	10,916,529	369,443	61	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	75	10,478,308	357,568	61	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	76	10,689,691	356,866	62	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	71	10,384,952	337,811	61	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	78	11,185,592	378,725	63	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	86	13,030,674	330,250	75	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	89	12,545,544	310,917	78	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	90	12,190,728	301,055	79	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	92	12,487,664	326,239	75	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	99	12,902,011	300,540	69	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	96	13,750,767	286,878	76	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	97	13,726,336	276,048	75	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	96	13,300,911	274,905	76	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	97	12,676,211	243,896	78	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	99	12,102,734	280,173	79	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	105	14,167,090	263,854	82	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	109	14,057,027	256,086	84	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	114	13,312,119	253,067	83	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	117	14,356,336	229,070	88	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	119	15,471,111	247,822	87	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	122	17,117,249	240,178	93	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	121	15,829,635	208,732	94	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	121	15,954,467	214,316	95	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	122	16,515,855	229,786	94	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	123	17,285,385	224,098	93	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	116	15,729,232	197,170	94	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	117	15,441,481	228,673	95	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	120	17,002,455	211,681	95	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	122	15,134,021	195,436	95	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	122	14,696,203	202,093	96	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	122	16,458,544	172,243	97	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	125	16,089,020	194,262	94	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	129	17,054,648	181,026	97	1,749,070	654,838	1.1	709,770	3,285,866	2.8	9,347,192
2002	11,530,672	4.5	51,379,103	546,200	1.2	652,755	1,266,700	132	16,750,458	170,900	103	1,764,531	648,400	1.1	722,116	3,121,100	3.1	9,527,106

Production in 2002 is preliminary figure.

Source) Central Bureau of Statistics

Table 3.1.7 Perspectrive of Supply and Demand of Rice for 2002 by Province

Province		Production (ton)	Population (persons)	Consumption (kg /capita)	Demand (ton)	Balance (ton)	Ratio	Balance
1 Sumatera Selatan	(Sumatra)	2,501,100	7,874,500	125.72	990,000	1,511,100	2.53	Surplus
2 Kalimantan Selatan	(Kalimantan)	649,000	2,886,800	131.53	379,700	269,300	1.71	Surplus
3 Sumatera Barat	(Sumatra)	1,035,200	4,252,200	150.45	639,700	395,500	1.62	Surplus
4 NTB	(Bali, NT)	874,500	3,871,900	148.55	575,200	299,300	1.52	Surplus
5 Lampung	(Sumatra)	1,229,700	6,719,600	120.75	811,400	418,300	1.52	Surplus
6 Jawa Tengah	(Java)	5,268,400	31,109,900	113.85	3,541,900	1,726,500	1.49	Surplus
7 Bali	(Bali, NT)	526,100	3,162,800	119.86	379,100	147,000	1.39	Surplus
8 Sulawesi Tengah	(Sulawesi)	350,100	2,107,100	120.55	254,000	96,100	1.38	Surplus
9 Jawa Timur	(Java)	5,267,500	34,962,000	110.83	3,874,800	1,392,700	1.36	Surplus
10 DI. Aceh	(Sumatra)	761,100	4,077,800	146.15	596,000	165,100	1.28	Surplus
11 Sulawesi Utara	(Sumatra)	2,028,600	11,607,100	139.64	1,620,800	407,800	1.25	Surplus
12 DI. Yogyakarta	(Java)	411,700	3,130,300	105.96	331,700	80,000	1.24	Surplus
13 Bengkulu	(Sumatra)	232,300	1,430,800	131.88	188,700	43,600	1.23	Surplus
14 Kalimantan Barat	(Kalimantan)	578,200	3,804,000	128.80	490,000	88,200	1.18	Surplus
15 Sulawesi Selatan	(Sulawesi)	1,093,900	7,923,300	122.17	968,000	125,900	1.13	Imbang
16 Jambi	(Sumatra)	338,000	2,444,200	127.46	311,500	26,500	1.09	Imbang
17 Kalimantan Timur	(Kalimantan)	257,700	2,503,300	100.91	252,600	5,100	1.02	Imbang
18 Jawa Barat	(Java)	6,114,900	44,498,000	137.42	6,114,900	0	1.00	Imbang
19 Kalimantan Tengah	(Kalimantan)	222,400	1,849,600	126.43	233,800	-11,400	0.95	Imbang
20 Sumatera Utara	(Sumatra)	307,600	2,858,900	119.41	341,400	-33,800	0.90	Defisit
21 Sulawesi Tenggara	(Sulawesi)	189,600	1,822,600	115.56	210,600	-21,000	0.90	Defisit
22 NTT	(Bali, NT)	218,500	4,004,500	94.93	380,100	-161,600	0.57	Defisit
23 Riau	(Sumatra)	224,700	4,913,400	115.99	569,900	-345,200	0.39	Defisit
24 Irian Jaya	(Malulu, Irian Jaya)	38,900	2,167,700	69.06	149,700	-110,800	0.26	Defisit
25 Maluku	(Malulu, Irian Jaya)	21,800	1,990,800	73.56	146,400	-124,600	0.15	Defisit
26 DKI Jakarta	(Java)	7,900	8,398,300	119.32	1,002,100	-994,200	0.01	Defisit
Total		**30,749,400**	**206,371,400**	**122.86**	**25,354,000**	**5,395,400**	**1.21**	**Surplus**
(Per capita consumption by Agriculture Census 1999)				**123.96**	**25,581,800**	**5,167,600**	**1.20**	**Surplus**

Source: Central Bureau of Statistics and Ministry of Agriculture.

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	605	0	2,293	0	156	389	0	1	104	0	0	2,055	33	15	3,003	5	1
1970	12,894	956	0	2,825	0	286	498	0	4	70	0	1	2,179	28	32	3,576	8	8
1971	13,467	506	0	2,606	0	219	516	0	1	123	0	1	2,328	20	51	3,475	12	3
1972	12,936	734	0	2,254	0	80	518	0	3	124	0	3	2,387	26	19	3,681	17	3
1973	14,333	1,863	0	3,690	0	181	541	0	36	174	0	4	2,506	36	32	4,086	21	1
1974	14,989	1,132	0	3,011	0	197	589	0	4	120	0	5	2,550	63	43	3,967	27	5
1975	14,900	692	0	2,903	0	51	590	18	0	124	0	5	2,628	57	39	3,742	27	7
1976	15,542	1,301	0	2,572	69	4	522	172	1	154	0	7	2,131	71	44	2,965	43	7
1977	15,573	1,973	0	3,143	14	10	523	89	0	248	0	8	2,097	80	53	3,736	35	8
1978	17,190	1,842	0	4,029	46	21	617	130	0	233	0	2	2,335	74	18	3,223	35	10
1979	17,531	1,922	0	3,606	84	7	680	177	0	204	0	1	2,396	102	42	3,785	32	15
1980	19,778	2,012	10	3,991	34	15	653	101	0	230	1	0	2,467	122	34	4,268	34	18
1981	21,860	538	0	4,509	2	5	704	361	0	217	1	0	2,454	168	37	4,575	41	12
1982	22,400	310	0	3,235	76	1	521	361	0	158	2	0	2,299	173	36	4,661	54	7
1983	23,547	1,169	0	5,087	28	18	536	222	0	250	2	2	2,602	52	45	4,567	26	6
1984	25,437	414	0	5,288	59	160	769	401	0	372	2	12	2,770	132	44	5,150	15	16
1985	26,035	34	259	4,330	50	4	870	302	0	373	1	19	3,235	34	41	4,832	16	15
1986	26,498	28	134	5,920	58	4	1,227	359	0	446	1	22	3,815	33	37	5,618	18	33
1987	26,732	55	33	5,156	221	5	1,161	287	0	369	0	34	4,000	32	30	5,413	12	51
1988	27,798	33	0	6,652	63	37	1,270	466	0	418	0	57	3,892	35	54	5,531	14	58
1989	29,832	268	105	6,193	40	234	1,315	390	0	559	0	72	4,349	55	70	4,795	19	91
1990	30,134	50	2	6,734	9	142	1,487	541	0	629	0	77	4,385	50	75	5,760	45	100
1991	29,807	171	1	6,256	323	33	1,555	673	0	526	1	98	4,273	57	102	5,937	49	155
1992	32,176	610	42	7,995	56	150	1,870	694	4	703	1	96	4,817	69	114	5,887	66	185
1993	32,137	24	351	6,460	494	61	1,709	724	1	809	1	127	5,027	98	129	5,916	95	274
1994	31,110	630	169	6,869	1,118	37	1,565	800	0	877	1	89	5,529	117	138	6,477	123	293
1995	33,179	3,158	0	8,246	969	79	1,680	607	0	1,035	1	103	6,464	133	121	9,321	149	368
1996	34,085	2,150	0	9,307	617	27	1,517	746	0	1,110	2	80	6,590	157	119	7,454	173	597
1997	32,934	348	0	8,771	1,098	19	1,357	616	0	813	3	37	5,576	178	80	7,480	245	357
1998	32,841	2,895	2	10,169	313	633	1,306	343	0	998	1	31	5,958	241	49	6,764	99	221
1999	33,928	4,748	3	9,204	618	91	1,383	1,302	0	924	11	32	6,322	494	97	7,152	140	608
2000	34,616	1,355	1	9,677	1,265	28	1,018	1,278	1	977	6	30	6,166	305	106	7,724	297	481
2001		642	4	9,347	1,036	90	827	1,136	1	954	4	28						

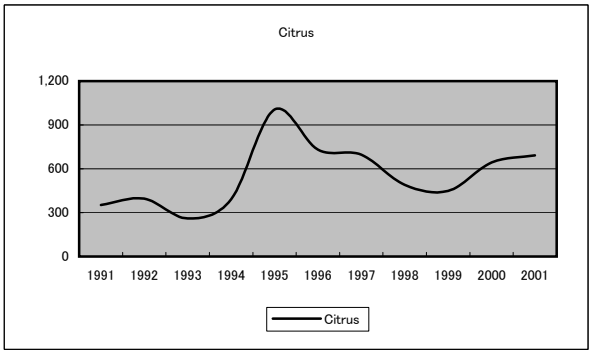
Source: FAO

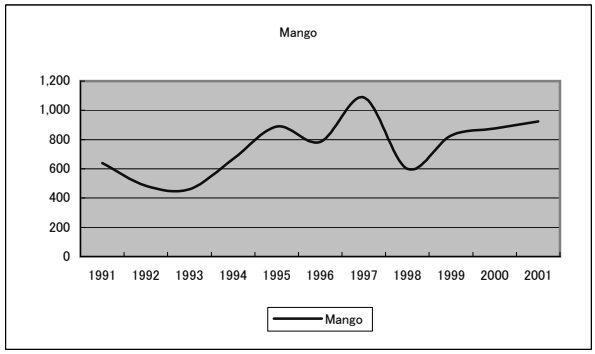
Table 3.1.9 Production of Major Horticultural Crops in Indonesia

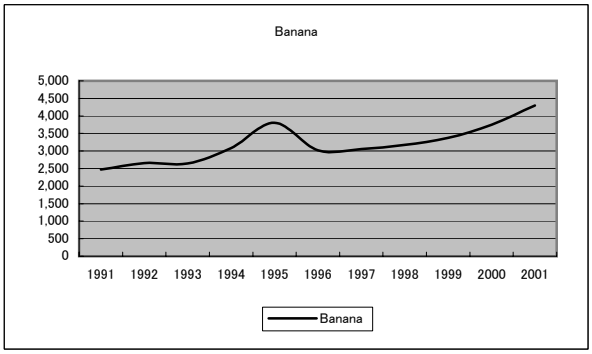
(Unit: 1,000 ton)

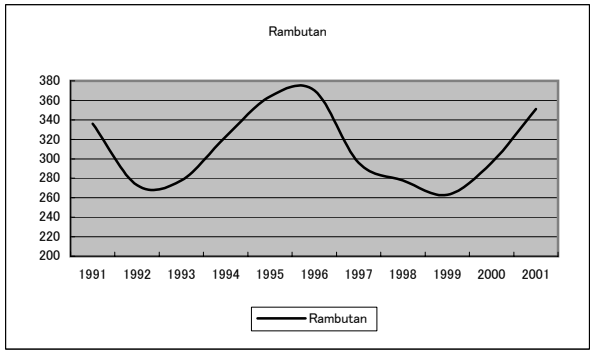
	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Mango	640	485	460	668	889	783	1,088	600	827	876	923
Citrus	353	396	260	393	1,005	731	696	491	450	644	691
Banana	2,472	2,651	2,644	3,087	3,805	3,023	3,057	3,177	3,376	3,747	4,300
Rambutan	336	273	278	323	364	370	296	278	263	296	351
Durian	205	153	171	269	290	267	236	210	194	237	347
Chili	627	704	773	724	1,590	1,044	802	849	1,008	728	580
Shallot	509	528	561	637	593	769	606	599	938	773	861
Tomato	334	401	362	476	652	592	461	547	562	593	484
Cabbage	975	1,213	1,266	1,418	1,625	1,580	1,339	1,459	1,448	1,336	1,205

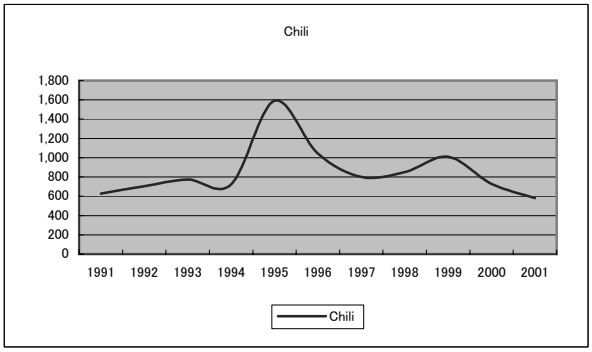
Source : General Information on Horticulture Production, DG Horticulture Production Development

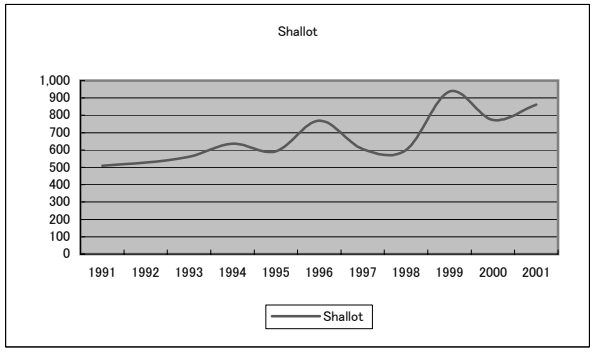


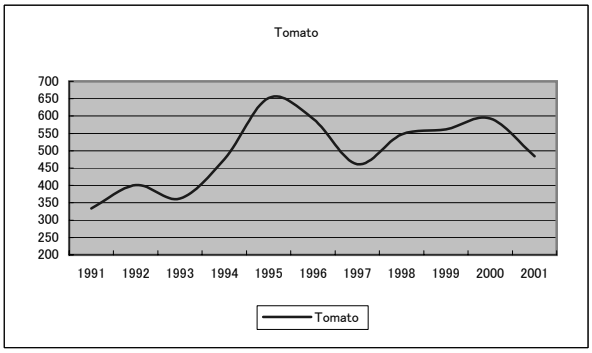












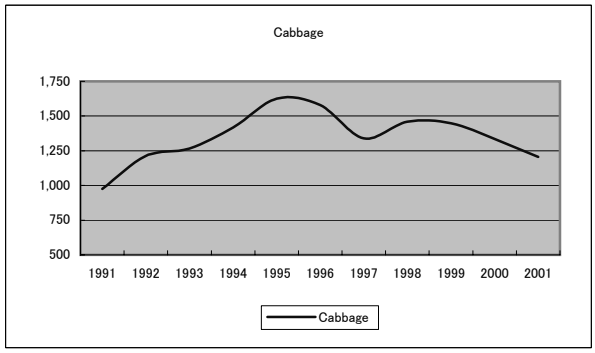


Table 3.1.10 Harvested Area and Production of Major Vegetables by Province in 2001

	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 3.1.11 Harvested Area and Production of Major Fruits by Province 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 3.1.12 Transition of Harvested Area and Production of Major Estate Crops

(1) Production Unit:1,000 ton

Estate Crops		1996	1997	1998	1999	2000	2001*)
Rubber	Large estate	335	331	333	294	376	397
	Small farmers	1,193	1,175	1,381	1,206	1,125	1,211
	Total	1,528	1,506	1,714	1,500	1,501	1,608
Coconut	Large estate	74	73	88	91	97	99
	Small farmers	2,687	2,620	2,690	2,904	2,951	3,024
	Total	2,761	2,693	2,778	2,995	3,048	3,123
Oil Palm	Large estate	2,560	4,081	4,013	4,455	4,575	4,757
	Small farmers	1,134	1,293	1,348	1,544	1,978	2,181
	Total	3,694	5,374	5,361	5,999	6,553	6,938
Coffee	Large estate	27	31	29	28	28	27
	Small farmers	436	396	470	494	585	582
	Total	463	427	499	522	613	609
Cocoa	Large estate	47	66	61	59	58	57
	Small farmers	304	264	370	305	354	370
	Total	351	330	431	364	412	427
Tea	Large estate	132	121	133	126	123	131
	Small farmers	34	33	34	35	40	41
	Total	166	154	167	161	163	172
Cashew	Large estate	1	1	1	1	0	0
	Small farmers	67	73	87	90	84	86
	Total	68	74	88	91	84	86
Sugarcane	Large estate	2,160	2,187	1,929	1,801	1,780	1,836
	Small farmers	0	0	0	0	0	0
	Total	2,160	2,187	1,929	1,801	1,780	1,836

(2)Planted area Unit: 1,000ha

Estate Crops		1996	1997	1998	1999	2000	2001*)
Rubber	Large estate	538	558	549	545	549	548
	Small farmers	2,979	2,958	3,082	3,087	3,046	3,120
	Total	3,517	3,516	3,631	3,632	3,595	3,668
Coconut	Large estate	132	120	126	94	95	95
	Small farmers	3,604	3,548	3,580	3,586	3,602	3,607
	Total	3,736	3,668	3,706	3,680	3,697	3,702
Oil Palm	Large estate	1,146	1,739	1,878	2,398	2,441	2,616
	Small farmers	739	813	891	1,038	1,190	1,206
	Total	1,885	2,552	2,769	3,436	3,631	3,822
Coffee	Large estate	47	62	63	63	63	63
	Small farmers	1,032	1,105	1,068	1,059	1,322	1,327
	Total	1,079	1,167	1,131	1,122	1,385	1,390
Cocoa	Large estate	130	146	151	155	158	161
	Small farmers	489	381	437	535	641	657
	Total	619	527	588	690	799	818
Tea	Large estate	89	89	91	92	90	89
	Small farmers	65	65	66	65	67	70
	Total	154	154	157	157	157	159
Cashew	Large estate	9	9	9	10	10	0
	Small farmers	484	490	522	548	572	575
	Total	493	499	531	558	582	575
Sugarcane	Large estate	400	378	405	391	389	392
	Small farmers	0	0	0	0	0	0
	Total	400	378	405	391	389	392
Total	Large estate	2,491	3,101	3,272	3,748	3,795	3,964
	Small farmers	9,392	9,360	9,646	9,918	10,440	10,562
	Total	11,883	12,461	12,918	13,666	14,235	14,526

Source : Statistic Indonesia 2002、Central Bureau of Statistics
Note : *) Preliminary Figures

Table 3.1.13 Harvested Area and Production of Major Estate Crops by Province 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 3.1.14 Number of Livestock by Province (1/4)

	Beef Cattle (heads)						DairyCattle (heads)					
	1997	1998	1999	2000	2001	2002*	1997	1998	1999	2000	2001	2002*
1 DI. Aceh	680,027	692,538	697,304	668,489	699,956	701,356	155	158	67	55	61	67
2 Sumatera Utara	268,364	246,279	247,485	247,781	248,078	248,375	8,811	6,386	6,411	6,420	6,445	6,470
3 Sumatera Barat	415,252	420,688	425,338	429,336	501,356	546,864	829	640	580	526	502	479
4 Riau	135,253	141,907	140,897	144,678	107,646	109,249	0	0	0	0	0	0
5 Jambi	151,108	156,350	150,253	142,054	138,398	142,550	23	26	23	23	pm	pm
6 Sumatera Selatan	515,539	522,090	407,812	420,617	415,743	419,000	134	133	197	202	302	365
7 Bengkulu	94,522	81,223	78,811	79,180	76,686	76,839	0	0	0	0	0	100
8 Lampung	451,913	443,044	409,762	375,115	373,534	380,697	78	83	96	106	110	117
9 Bangka Belitung	0	0	0	0	4,157	4,663	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**	**10,030**	**7,426**	**7,374**	**7,332**	**7,420**	**7,598**
10 DKI Jakarta	0	0	0	0	0	0	4,293	4,355	4,472	3,857	4,054	4,000
11 Jawa Barat	183,286	151,543	157,725	174,697	189,518	189,518	95,224	79,237	80,749	84,788	84,934	89,823
12 Jawa Tengah	1,260,278	1,247,995	1,236,580	1,317,341	1,331,103	1,337,758	102,825	102,113	105,181	114,834	114,915	115,490
13 DI. Yogyakarta	197,428	201,142	202,138	206,714	211,889	217,186	3,453	3,836	4,105	4,069	4,454	4,876
14 Jawa Timur	3,382,670	3,223,055	3,380,547	3,312,015	2,514,341	2,514,844	118,121	124,618	129,775	139,075	130,922	131,838
15 Banten	0	0	0	0	9,236	9,467	0	0	0	0	32	32
Jawa	**5,023,662**	**4,823,735**	**4,976,990**	**5,010,767**	**4,256,087**	**4,268,773**	**323,916**	**314,159**	**324,282**	**346,623**	**339,311**	**346,059**
16 Bali	538,753	524,615	526,013	529,074	521,264	523,870	71	55	62	67	67	69
17 NTB	471,847	429,847	374,940	376,526	395,751	403,666	0	0	0	0	0	0
18 NTT	717,111	715,704	726,439	485,329	495,051	502,589	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**	**71**	**55**	**62**	**67**	**67**	**69**
19 Kalimantan Barat	163,295	166,838	151,968	151,598	144,538	157,040	62	65	62	50	69	71
20 Kalimantan Tengah	48,282	49,790	45,346	45,326	39,544	40,055	0	0	0	0	0	0
21 Kalimantan Selatan	166,597	143,922	140,553	143,416	146,763	153,147	98	60	62	59	64	70
22 Kalimantan Timur	84,733	40,457	45,907	50,773	53,511	56,187	65	65	65	25	23	26
Kalimantan	**462,907**	**401,007**	**383,774**	**391,113**	**384,356**	**406,429**	**225**	**190**	**189**	**134**	**156**	**167**
23 Sulawesi Utara	294,666	294,666	271,887	276,524	132,514	134,396	22	24	22	0	-	0
24 Sulawesi Tengah	262,027	273,818	234,489	234,444	231,489	231,997	0	0	0	0	0	0
25 Sulawesi Selatan	840,642	823,245	749,392	718,139	722,452	751,277	0	32	30	25	44	60
26 Sulawesi Tenggara	289,143	292,846	295,717	300,451	235,004	236,180	0	0	0	0	0	0
27 Gorontalo	0	0	0	0	159,334	163,747	0	0	0	0	0	0
Sulawesi	**1,686,478**	**1,684,575**	**1,551,485**	**1,529,558**	**1,480,793**	**1,517,597**	**22**	**56**	**52**	**25**	**44**	**60**
28 Maluku	109,835	114,228	97,938	97,938	59,387	60,636	0	0	0	0	0	0
29 Maluku Utara	0	0	0	0	44,091	46,449	0	0	0	0	0	0
30 Irian Jaya	69,800	74,942	80,462	80,462	72,246	76,581	63	70	72	72	0	0
Maluku, Irian	**179,635**	**189,170**	**178,400**	**178,400**	**175,724**	**183,666**	**63**	**70**	**72**	**72**	**0**	**0**
Total	**11,792,371**	**11,472,772**	**11,275,703**	**11,008,017**	**10,274,580**	**10,436,183**	**334,327**	**321,956**	**332,031**	**354,253**	**346,998**	**353,953**

Note: *; Preliminary figures
Source：Statistical Book on Livestock 2002

Table 3.1.14 Number of Livestock by Province (2/4)

	Goat (head)						Pig (head)					
	1997	1998	1999	2000	2001	2002*	1997	1998	1999	2000	2001	2002*
1 DI. Aceh	644,654	663,131	622,501	626,983	634,883	642,883	322	443	461	154	113	143
2 Sumatera Utara	785,229	691,228	694,338	698,851	703,393	707,965	976,277	765,652	767,566	787,223	807,375	828,043
3 Sumatera Barat	292,697	299,475	234,537	236,929	280,235	331,047	46,955	47,078	47,147	47,449	47,633	47,821
4 Riau	319,000	395,305	215,702	222,912	210,091	220,175	525,088	757,332	514,566	351,909	346,119	355,014
5 Jambi	126,422	124,731	120,340	122,386	122,664	128,797	16,192	14,479	13,905	13,446	12,440	12,600
6 Sumatera Selatan	574,001	597,838	420,639	432,080	435,653	440,000	72,564	75,802	48,894	50,155	33,712	51,000
7 Bengkulu	156,749	101,417	102,370	103,356	104,671	105,871	1,103	1,142	1,179	1,202	1,224	1,285
8 Lampung	601,506	725,895	734,026	628,514	726,350	730,764	72,280	82,041	84,868	62,124	94,188	103,273
9 Bangka Belitung	0	0	0	0	2,588	3,140	0	0	0	0	32,482	38,978
Sumatra	**3,500,258**	**3,599,020**	**3,144,453**	**3,072,011**	**3,220,528**	**3,310,642**	**1,710,781**	**1,743,969**	**1,478,586**	**1,313,662**	**1,375,286**	**1,438,157**
10 DKI Jakarta	6,767	8,349	6,415	9,338	9,894	11,000	0	0	0	0	0	0
11 Jawa Barat	1,935,346	1,698,631	1,666,500	1,705,605	922,633	1,215,908	25,550	18,119	11,136	14,539	12,337	9,966
12 Jawa Tengah	3,053,791	2,899,335	2,812,151	2,968,072	2,974,914	2,981,756	100,532	94,823	80,590	108,302	99,094	99,094
13 DI. Yogyakarta	277,583	263,265	263,397	266,894	261,958	264,578	6,741	5,972	6,908	8,317	9,576	9,672
14 Jawa Timur	2,618,502	2,232,229	2,264,992	2,284,244	2,297,036	2,319,960	54,610	27,876	27,426	39,698	38,633	38,633
15 Banten	0	0	0	0	563,405	582,279	0	0	0	0	5,761	6,280
Jawa	**7,891,989**	**7,101,809**	**7,013,455**	**7,234,153**	**7,029,840**	**7,375,481**	**187,433**	**146,790**	**126,060**	**170,856**	**165,401**	**163,645**
16 Bali	122,225	110,350	103,037	96,003	69,873	70,088	1,131,283	967,402	968,011	939,046	941,230	945,936
17 NTB	343,064	273,184	234,063	240,877	239,225	251,186	26,153	21,447	21,507	30,577	39,900	43,890
18 NTT	629,009	636,466	654,922	361,714	398,560	420,836	2,229,134	2,233,369	2,287,302	725,457	953,457	1,241,983
Bali, Nusatenggara	**1,094,298**	**1,020,000**	**992,022**	**698,594**	**707,658**	**742,110**	**3,386,570**	**3,222,218**	**3,276,820**	**1,695,080**	**1,934,587**	**2,231,809**
19 Kalimantan Barat	110,072	111,082	123,086	117,797	98,567	151,970	331,786	293,286	357,783	323,853	347,401	480,950
20 Kalimantan Tengah	22,676	22,676	27,008	29,880	24,079	26,663	145,838	146,338	156,840	163,442	167,747	174,326
21 Kalimantan Selatan	71,882	64,640	66,756	69,827	73,649	76,286	11,075	6,466	6,752	6,657	7,247	7,643
22 Kalimantan Timur	73,544	60,754	59,913	57,501	70,094	72,947	116,170	90,703	87,742	122,166	137,113	157,680
Kalimantan	**278,174**	**259,152**	**276,763**	**275,005**	**266,389**	**327,866**	**604,869**	**536,793**	**609,117**	**616,118**	**659,508**	**820,599**
23 Sulawesi Utara	104,604	106,696	123,126	125,897	46,682	46,831	505,051	303,301	240,202	298,691	294,063	305,826
24 Sulawesi Tengah	202,027	210,714	183,314	181,139	162,965	191,526	226,670	247,954	108,023	108,646	103,545	132,072
25 Sulawesi Selatan	468,967	489,433	461,115	478,594	524,072	536,239	575,061	598,102	507,474	461,277	311,153	484,248
26 Sulawesi Tenggara	117,587	212,967	122,323	115,374	89,255	91,490	18,523	22,056	23,160	20,126	19,477	10,060
27 Gorontalo	0	0	0	0	83,931	92,811	0	0	0	0	8,432	7,622
Sulawesi	**893,185**	**1,019,810**	**889,878**	**901,004**	**906,905**	**958,897**	**1,325,305**	**1,171,413**	**878,859**	**888,740**	**736,670**	**939,828**
28 Maluku	261,385	292,751	331,800	331,800	140,564	143,383	109,335	119,175	107,258	107,258	82,385	85,685
29 Maluku Utara	0	0	0	0	151,648	145,391	0	0	0	0	5,200	6,000
30 Irian Jaya	46,290	49,532	53,002	53,002	40,357	41,168	532,680	548,660	565,120	565,120	410,288	426,741
Maluku, Irian	**307,675**	**342,283**	**384,802**	**384,802**	**332,569**	**329,942**	**642,015**	**667,835**	**672,378**	**672,378**	**497,873**	**518,426**
Total	**13,965,579**	**13,342,074**	**12,701,373**	**12,565,569**	**12,463,889**	**13,044,938**	**7,856,973**	**7,489,018**	**7,041,820**	**5,356,834**	**5,369,325**	**6,112,464**

Note: *; Preliminary figures
Source: Statistical Book on Livestock 2002

Table 3.1.14 Number of Livestock by Province (3/4)

	Native Chicken (heads)						Layer (heads)					
	1997	1998	1999	2000	2001	2002*	1997	1998	1999	2000	2001	2002*
1 DI. Aceh	15,157,846	19,278,293	15,914,184	16,192,682	17,511,361	18,929,781	213,375	228,727	260,640	245,592	257,356	369,983
2 Sumatera Utara	21,160,000	19,574,500	19,736,970	20,532,960	21,361,054	22,222,545	6,266,676	3,763,760	10,746,077	15,723,936	12,883,729	13,141,403
3 Sumatera Barat	7,253,675	7,369,734	7,435,908	7,510,267	7,604,626	7,784,060	1,322,620	1,095,512	1,295,507	3,210,126	3,691,645	4,208,241
4 Riau	4,069,102	4,231,866	5,727,608	7,994,993	5,317,917	5,663,582	792,184	856,351	596,323	683,667	651,096	653,245
5 Jambi	3,773,435	4,051,183	3,994,049	4,195,949	3,124,160	3,145,000	272,858	254,078	205,163	268,497	286,133	290,000
6 Sumatera Selatan	15,129,000	15,612,000	14,965,000	16,500,000	16,533,000	17,974,000	1,167,000	2,209,000	1,383,000	3,000,000	4,600,000	5,200,000
7 Bengkulu	4,037,642	2,790,011	2,801,171	2,919,951	3,166,905	3,325,250	50,750	30,174	17,963	29,100	38,041	57,061
8 Lampung	14,209,000	14,810,531	14,989,740	13,300,148	15,163,783	15,315,421	871,179	1,467,354	1,553,194	3,116,304	1,780,313	1,798,116
9 Bangka Belitung	0	0	0	0	2,136,600	2,566,392					216,835	260,205
Sumatra	**84,789,700**	**87,718,118**	**85,564,630**	**89,146,950**	**91,919,406**	**96,926,031**	**10,956,642**	**9,904,956**	**16,057,867**	**26,277,222**	**24,405,148**	**25,978,254**
10 DKI Jakarta	110,512	127,427	121,736	150,212	175,821	166,000	12,232	0	0	500	0	0
11 Jawa Barat	32,767,621	28,638,481	33,152,942	34,091,782	27,703,049	30,029,537	11,939,916	7,510,987	8,682,421	12,432,950	7,403,492	9,278,165
12 Jawa Tengah	34,330,205	31,458,193	31,584,135	31,970,524	32,880,202	33,195,539	10,290,716	5,646,294	5,641,263	6,730,818	7,112,163	7,254,406
13 DI. Yogyakarta	5,054,116	4,879,562	5,033,246	5,105,777	5,101,541	5,152,556	2,142,185	847,258	1,029,243	1,142,601	1,360,186	1,619,165
14 Jawa Timur	37,097,943	36,411,485	36,920,771	37,176,008	37,437,568	37,888,316	24,055,506	5,991,993	6,818,930	14,358,602	14,617,057	14,909,863
15 Banten	0	0	0	0	7,706,941	8,304,999					6,049,430	7,198,822
Jawa	**109,360,397**	**101,515,148**	**106,812,830**	**108,494,303**	**111,005,122**	**114,736,947**	**48,440,555**	**19,996,532**	**22,171,857**	**34,665,471**	**36,542,328**	**40,260,421**
16 Bali	6,544,878	5,672,902	5,111,395	5,055,649	4,798,630	4,822,623	2,162,685	924,605	1,065,474	1,567,321	1,572,668	1,578,033
17 NTB	6,086,941	6,036,800	3,760,284	3,325,722	3,818,547	4,200,402	438,693	306,768	41,479	53,605	57,952	63,747
18 NTT	8,000,441	8,743,074	9,153,997	9,153,997	9,356,240	9,707,099	119,611	35,883	36,601	50,000	185,945	189,297
Bali, Nusatenggara	**20,632,260**	**20,452,776**	**18,025,676**	**17,535,368**	**17,973,417**	**18,730,124**	**2,720,989**	**1,267,256**	**1,143,554**	**1,670,926**	**1,816,565**	**1,831,077**
19 Kalimantan Barat	4,043,892	3,654,740	3,948,971	3,841,321	4,171,870	4,442,055	1,743,750	1,678,300	1,689,000	1,710,550	1,746,300	1,899,900
20 Kalimantan Tengah	2,246,369	2,384,399	2,747,369	3,150,775	3,154,874	3,431,072	27,248	18,787	16,565	19,162	14,402	16,834
21 Kalimantan Selatan	5,356,484	3,705,167	3,980,461	4,648,037	5,528,946	6,282,541	661,709	593,137	554,032	549,527	647,673	665,614
22 Kalimantan Timur	4,309,200	3,160,800	2,988,400	3,048,600	3,108,900	3,205,276	739,084	379,400	545,100	324,910	470,300	477,825
Kalimantan	**15,955,945**	**12,905,106**	**13,665,201**	**14,688,733**	**15,964,590**	**17,360,944**	**3,171,791**	**2,669,624**	**2,804,697**	**2,604,149**	**2,878,675**	**3,060,173**
23 Sulawesi Utara	2,175,963	2,282,150	2,631,518	2,709,843	2,072,935	2,155,852	837,947	860,069	631,592	631,592	548,771	576,210
24 Sulawesi Tengah	2,553,679	2,604,752	1,150,483	1,219,590	1,441,303	1,443,321	142,997	142,997	204,946	395,507	375,290	525,290
25 Sulawesi Selatan	14,961,920	14,707,768	14,684,327	15,617,718	17,434,428	17,935,247	3,591,554	3,436,432	2,161,831	2,787,881	3,363,644	3,426,047
26 Sulawesi Tenggara	6,327,525	6,611,864	6,439,833	6,165,289	6,330,234	6,425,190	207,709	34,280	34,449	13,205	34,449	36,170
27 Gorontalo	0	0	0	0	771,644	803,319					137,933	156,954
Sulawesi	**26,019,087**	**26,206,534**	**24,906,161**	**25,712,440**	**28,050,544**	**28,762,929**	**4,780,207**	**4,473,778**	**3,032,818**	**3,828,185**	**4,460,087**	**4,720,671**
28 Maluku	2,105,649	2,253,044	2,140,392	2,140,392	997,197	1,037,677	124,863	124,863	0	0	44,087	47,749
29 Maluku Utara	0	0	0	0	701,526	754,651					2,000	2,800
30 Irian Jaya	1,395,400	1,465,162	1,538,411	1,538,411	1,427,256	1,492,196	387,817	387,817	320,053	320,053	105,602	114,378
Maluku, Irian	**3,501,049**	**3,718,206**	**3,678,803**	**3,678,803**	**3,125,979**	**3,284,524**	**512,680**	**512,680**	**320,053**	**320,053**	**151,689**	**164,927**
Total	**260,258,438**	**252,515,888**	**252,653,301**	**259,256,597**	**268,039,058**	**279,801,499**	**70,582,864**	**38,824,826**	**45,530,846**	**69,366,006**	**70,254,492**	**76,015,523**

Note: *; Preliminary figures
Source: Statistical Book on Livestock 2002

Table 3.1.14 Number of Livestock by Province (4/4)

	Broiler (heads)						Duck (heads)					
	1997	1998	1999	2000	2001	2002*	1997	1998	1999	2000	2001	2002*
1 DI. Aceh	1,108,100	887,624	951,548	965,155	978,957	992,956	3,399,178	3,418,914	3,292,047	3,314,103	3,336,510	3,358,864
2 Sumatera Utara	72,510,000	21,347,000	20,154,215	26,893,165	38,045,268	38,806,173	2,265,317	2,192,490	2,210,690	2,223,951	2,237,295	2,250,717
3 Sumatera Barat	4,555,663	9,983,704	10,196,748	10,400,682	10,653,726	76,213,025	1,658,999	1,676,750	1,683,673	1,711,790	1,744,732	1,781,009
4 Riau	13,726,918	13,829,870	6,746,549	8,427,829	8,520,831	8,658,016	270,414	274,470	302,831	401,744	328,920	335,597
5 Jambi	2,182,855	1,799,321	2,817,880	4,793,997	5,574,539	5,580,000	552,130	632,294	625,627	628,169	439,428	450,500
6 Sumatera Selatan	13,852,000	4,866,000	13,851,000	15,500,000	16,500,000	17,000,000	1,705,000	1,252,000	2,131,000	2,198,000	2,050,000	2,127,000
7 Bengkulu	2,165,532	2,273,809	2,387,499	2,453,080	2,715,100	2,986,610	654,760	229,166	210,258	225,650	232,913	244,558
8 Lampung	7,306,488	2,301,647	15,655,272	23,929,600	22,521,970	22,747,190	387,844	418,331	419,532	559,827	426,205	430,467
9 Bangka Belitung	0	0	0	0	354,862	425,835	0	0	0	0	170,400	204,480
Sumatra	**117,407,556**	**57,288,975**	**72,760,711**	**93,363,508**	**105,865,253**	**173,409,805**	**10,893,642**	**10,094,415**	**10,875,658**	**11,263,234**	**10,966,403**	**11,183,192**
10 DKI Jakarta	1,067,500	610,400	854,000	889,000	1,046,500	1,015,000	49,996	61,551	124,064	140,144	129,189	125,000
11 Jawa Barat	145,950,581	88,483,024	88,765,654	196,422,402	238,050,365	243,781,272	3,603,423	2,905,893	3,921,126	4,204,705	4,055,539	4,414,785
12 Jawa Tengah	142,864,962	68,585,024	71,244,629	71,554,382	53,879,257	54,956,842	3,781,155	3,781,155	3,292,498	3,661,805	3,772,070	3,809,791
13 DI. Yogyakarta	11,107,061	8,679,083	10,137,478	12,431,023	15,873,340	18,821,019	231,770	202,130	203,627	227,476	220,272	222,475
14 Jawa Timur	156,304,232	89,300,169	42,904,080	88,077,360	89,706,792	91,500,930	2,986,181	2,252,515	2,281,549	2,311,665	2,316,205	2,351,003
15 Banten	0	0	0	0	46,437,708	55,725,252	0	0	0	0	1,159,513	1,379,820
Jawa	**457,294,336**	**255,657,700**	**213,905,841**	**369,374,167**	**444,993,962**	**465,800,315**	**10,652,525**	**9,203,244**	**9,822,864**	**10,545,795**	**11,652,788**	**12,302,874**
16 Bali	16,001,811	1,159,607	1,574,084	18,646,404	17,951,970	19,747,164	713,343	534,171	539,024	616,460	532,743	543,398
17 NTB	0	0	2,038,477	2,705,129	2,995,041	3,294,545	594,132	382,579	415,806	490,958	494,797	519,537
18 NTT	714,244	338,408	345,258	354,313	475,000	487,500	161,176	183,050	191,653	191,653	200,277	210,291
Bali, Nusatenggara	**16,716,055**	**1,498,015**	**3,957,819**	**21,705,846**	**21,422,011**	**23,529,209**	**1,468,651**	**1,099,800**	**1,146,483**	**1,299,071**	**1,227,817**	**1,273,226**
19 Kalimantan Barat	14,335,390	8,919,070	10,234,795	15,787,359	15,080,128	15,754,200	326,076	264,300	278,176	283,240	287,776	303,970
20 Kalimantan Tengah	1,332,185	1,234,415	1,376,500	1,616,795	1,378,805	1,659,954	147,421	153,831	147,223	150,350	107,749	114,122
21 Kalimantan Selatan	6,020,064	2,621,151	2,411,338	6,148,602	7,559,551	9,004,937	3,116,289	1,497,340	1,955,751	2,316,779	2,496,944	2,964,875
22 Kalimantan Timur	8,242,800	4,333,800	12,390,800	14,306,200	17,832,200	18,702,411	324,200	227,700	228,600	214,500	264,700	277,935
Kalimantan	**29,930,439**	**17,108,436**	**26,413,433**	**37,858,956**	**41,850,684**	**45,121,502**	**3,913,986**	**2,143,171**	**2,609,750**	**2,964,869**	**3,157,169**	**3,660,902**
23 Sulawesi Utara	2,832,597	2,061,130	3,443,941	4,121,368	4,555,152	4,782,910	417,649	417,649	99,138	106,264	59,271	60,160
24 Sulawesi Tengah	806,432	5,870,823	745,400	974,015	988,450	990,229	145,310	148,216	102,019	151,285	204,742	207,091
25 Sulawesi Selatan	13,701,758	10,756,746	1,570,930	1,890,100	1,727,863	1,984,227	2,322,324	2,308,503	2,379,148	2,243,335	4,238,415	4,355,053
26 Sulawesi Tenggara	0	972,230	115,000	152,420	131,867	145,050	262,351	273,672	278,443	223,020	220,229	225,740
27 Gorontalo	0	0	0	0	35,798	53,775	0	0	0	0	69,361	80,646
Sulawesi	**17,340,787**	**19,660,929**	**5,875,271**	**7,137,903**	**7,439,130**	**7,956,191**	**3,147,634**	**3,148,040**	**2,858,748**	**2,723,904**	**4,792,018**	**4,928,690**
28 Maluku	961,884	942,646	0	0	36,065	36,130	109,360	121,389	122,000	122,000	65,336	66,323
29 Maluku Utara	0	0	0	0	30,000	30,000	0	0	0	0	64,830	67,735
30 Irian Jaya	1,252,200	1,339,869	1,433,677	1,433,677	233,323	248,323	105,620	110,903	116,449	116,449	141,983	144,155
Maluku, Irian	**2,214,084**	**2,282,515**	**1,433,677**	**1,433,677**	**299,388**	**314,453**	**214,980**	**232,292**	**238,449**	**238,449**	**272,149**	**278,213**
Total	**640,903,257**	**353,496,570**	**324,346,752**	**530,874,057**	**621,870,428**	**716,131,475**	**30,291,418**	**25,920,962**	**27,551,952**	**29,035,322**	**32,068,344**	**33,627,097**

Note: *; Preliminary figures

Source: Statistical Book on Livestock 2002

Table 3.1.15 Livestock Production

(Unit: 1,000 ton)

Year	Meat	Egg	Milk
1969	309,300.0	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*	1,583,000	908,900	521,000

Note: -Preliminary figures for 2001
-Estimated figures for 2002

Source: Statistical Book on Livestock 2002

Table 3.1.16 Trade Balance of Livestock Products

Import

Species	Unit	1996	1997	1998	1999	2000	2001
I. Livestock							
Cattle Breed	1,000 heads	3.8	4.4	1.9	0.2	0.5	4.6
Feeder Steers	1,000 heads	205.1	277.0	49.9	118.4	267.7	168.1
Pig Breed	1,000 heads	0.0	0.2	0.0	0.0	0.3	0.1
PS	1,000 heads	1,287.9	693.2	496.6	1,862.5	1,610.1	1,751.0
Poultry	1,000 heads	74.0	234.7	105.8	28.9	158.2	111.6
II. Meat							
Bovine	ton	15,772.8	23,315.3	8,813.8	10,552.9	26,962.3	16,516.6
Sheep/Goat	ton	702.0	675.4	412.2	434.7	591.8	691.7
Pork	ton	96.0	101.3	57.6	107.8	320.6	213.1
Poultry	ton	2,051.2	811.1	571.5	4,070.4	14,017.4	1,454.2
Bovine Liver	ton	11,416.5	8,942.2	6,228.9	7,746.0	30,403.1	24,626.2
III. Livestock Products							
Milk Products	ton	51,788.5	48,783.3	32,737.4	59,926.7	117,268.2	119,922.1
Butter	ton	32,315.8	29,795.3	17,944.3	28,478.7	41,391.6	43,572.4
Cheese	ton	6,119.4	4,691.3	3,809.9	4,274.8	6,062.2	6,419.9
Egg	1,000 pcs	161.4	162.7	80.5	531.8	533.0	2,433.2

Export

Species	Unit	1996	1997	1998	1999	2000	2001
I. Livestock							
Pig	1,000 heads	161.9	184.9	260.0	486.6	801.3	801.3
PS/FS	1,000 heads	1,371.4	466.3	270.1	1,192.4	1,070.1	1,070.1
Poultry	1,000 heads	1,537.8	527.8	148.6	40.4	699.5	699.5
II. Meat							
Bovine	ton	4.2	5.0	1.2	17.1	26.1	175.1
Sheep/Goat	ton	0.0	0.0	68.5	12.5	34.6	86.3
Pork	ton	40.9	366.2	188.7	222.4	689.7	460.7
Poultry	ton	0.3	1.8	3,006.5	2,859.3	703.8	1,740.2
III. Livestock Products							
Milk	ton	4,978.3	1,730.6	2,385.1	2,352.7	31,482.4	29,743.7
Butter	ton	311.5	2,728.5	4,936.1	14,562.2	29,171.3	46,411.9
Cheese	ton	17.7	9.9	167.5	13.0	21.7	28.4
Egg	1,000 pcs	0.9	4.9	0.0	0.0	77.7	449.5

Source: Statistical Book on Livestock, 2002

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	4.16	2.00	0.73	0.36	3.09
1999	4.20	2.82	5.23	1.98	0.89	0.46	3.33
2000	5.16	3.48	6.50	2.43	1.10	0.57	4.10
2001	5.11	3.47	6.46	2.40	1.10	0.57	4.07

Note: -Preliminary figures for 2000
-Estimated figures for 2001
Source: Statistical Book on Livestock 2001

Table 3.1.18 Area of Wet Land by Type of Irrigation in 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		**0.0%**		**0.0%**		**0.0%**		**0.0%**		**0.0%**		**0.0%**		**0.0%**		**0.0%**
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		**0.0%**		**0.0%**		**0.0%**		**0.0%**		**0.0%**		**0.0%**		**0.0%**		**0.0%**
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		**0.0%**		**0.0%**		**0.0%**		**0.0%**		**0.0%**		**0.0%**		**0.0%**		**0.0%**
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		**0.0%**		**0.0%**		**0.0%**		**0.0%**		**0.0%**		**0.0%**		**0.0%**		**0.0%**
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 3.1.19 Area of Wet Land by Type of Irrigation in 2001

	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	4.9%	525	0.1%	1,283	0.4%	288,574	3.8%
2	North Sumatra	70,774	3.2%	80,247	8.2%	144,485	8.8%	295,506	6.1%	160,100	8.8%	28,589	4.8%	40,454	11.6%	524,649	6.9%
3	West Sumatra	37,619	1.7%	53,179	5.4%	91,558	5.6%	182,356	3.7%	47,260	2.6%	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	2.4%	28,521	4.7%	3,312	1.0%	111,935	1.5%
5	Jambi	3,483	0.2%	9,929	1.0%	25,505	1.6%	38,917	0.8%	15,895	0.9%	61,154	10.2%	25,279	7.3%	141,245	1.9%
6	South Sumatra	26,296	1.2%	11,307	1.2%	39,829	2.4%	77,432	1.6%	85,839	4.7%	125,156	20.8%	151,241	43.5%	439,668	5.8%
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	4.0%	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**	**29.1%**	**267,737**	**44.6%**	**247,109**	**71.1%**	**2,097,939**	**27.5%**
	Java		**0.0%**		**0.0%**		**0.0%**		**0.0%**		**0.0%**		**0.0%**		**0.0%**		**0.0%**
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	7.9%	0	0.0%	1,077	0.3%	924,871	12.1%
3	Central Java	382,897	17.1%	123,098	12.5%	210,402	12.8%	716,397	14.7%	273,185	15.0%	238	0.0%	1,431	0.4%	991,251	13.0%
4	DI. Yogyakarta	18,040	0.8%	23,908	2.4%	6,556	0.4%	48,504	1.0%	10,038	0.6%	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	13.3%	178	0.0%	2,792	0.8%	1,159,592	15.2%
6	Banten	57,231	2.6%	15,425	1.6%	39,685	2.4%	112,341	2.3%	89,560	4.9%	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**	**41.8%**	**416**	**0.1%**	**5,445**	**1.6%**	**3,339,118**	**43.8%**
	Bali & Nusa Tenggara		**0.0%**		**0.0%**		**0.0%**		**0.0%**		**0.0%**		**0.0%**		**0.0%**		**0.0%**
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	1.8%	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	1.8%	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**	**3.6%**	**33**	**0.0%**	**54**	**0.0%**	**413,377**	**5.4%**
	Kalimantan		**0.0%**		**0.0%**		**0.0%**		**0.0%**		**0.0%**		**0.0%**		**0.0%**		**0.0%**
1	West Kalimantan	162	0.0%	9,573	1.0%	78,124	4.8%	87,859	1.8%	106,566	5.9%	82,755	13.8%	9,833	2.8%	287,013	3.8%
2	Central Kalimantan	2,832	0.1%	13,673	1.4%	53,357	3.3%	69,862	1.4%	25,046	1.4%	86,445	14.4%	1,203	0.3%	182,556	2.4%
3	South Kalimantan	21,649	1.0%	4,064	0.4%	28,444	1.7%	54,157	1.1%	19,429	1.1%	146,628	24.4%	80,688	23.2%	300,902	3.9%
4	East Kalimantan	0	0.0%	1,599	0.2%	31,883	1.9%	33,482	0.7%	23,879	1.3%	14,522	2.4%	2,159	0.6%	74,042	1.0%
	Total	**24,643**	**1.1%**	**28,909**	**2.9%**	**191,808**	**11.7%**	**245,360**	**5.0%**	**174,920**	**9.6%**	**330,350**	**55.0%**	**93,883**	**27.0%**	**844,513**	**11.1%**
	Sulawesi		**0.0%**		**0.0%**		**0.0%**		**0.0%**		**0.0%**		**0.0%**		**0.0%**		**0.0%**
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	0.8%	1,331	0.2%	400	0.1%	128,023	1.7%
3	South Sulawesi	191,969	8.6%	52,939	5.4%	163,958	10.0%	408,866	8.4%	251,717	13.9%	690	0.1%	0	0.0%	661,273	8.7%
4	Southeast Sulawesi	23,544	1.0%	13,758	1.4%	21,449	1.3%	58,751	1.2%	4,827	0.3%	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**	**15.9%**	**2,322**	**0.4%**	**836**	**0.2%**	**937,084**	**12.3%**
27	**Grand Total**	**2,244,297**	**100%**	**981,727**	**100%**	**1,640,841**	**100%**	**4,866,865**	**100%**	**1,816,981**	**100%**	**600,858**	**100%**	**347,327**	**100%**	**7,632,031**	**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 3.1.20 Current Situation of BIPP

Province	Districts	Current Situation of BIPP									Total
		Centre (1)	Agency (2)	Office (3)	Unit (4)	Sub-Division (5)	Section (6)	Functional Position Group (7)	Not decided yet (8)	Abolished (9)	
1 DI. Aceh	13	0	1	7	0	2	0	3	0	0	13
2 Sumatera Utara	19	3	0	3	2	8	1	2	0	0	19
3 Sumatera Barat	15	1	0	0	0	8	0	5	0	1	15
4 Riau	14	1	0	3	0	2	3	4	1	0	14
5 Jambi	10	1	0	1	1	5	0	2	0	0	10
6 Bengkulu	4	2	0	2	0	0	0	0	0	0	4
7 Lampung	10	0	0	1	0	4	0	3	0	2	10
8 Sumatera Selatan	7	0	0	0	2	2	1	2	0	0	7
9 DKI Jakarta	6	0	0	0	0	0	0	6	0	0	6
10 Jawa Barat	23	2	0	6	1	4	0	10	0	0	23
11 DI. Yogyakarta	5	0	0	0	2	1	0	1	1	0	5
12 Jawa Tengah	35	1	0	1	4	3	3	21	1	1	35
13 Jawa Timur	37	5	0	9	0	8	3	12	0	0	37
14 Bali	9	0	0	0	0	3	0	3	2	1	9
15 NTB	7	0	1	1	2	1	1	1	0	0	7
16 NTT	14	0	3	6	0	4	1	0	0	0	14
17 Kalimantan Barat	9	0	0	0	0	5	0	4	0	0	9
18 Kalimantan Tengah	6	1	0	1	2	1	0	1	0	0	6
19 Kalimantan Selatan	11	0	0	3	1	2	1	3	1	0	11
20 Kalimantan Timur	12	3	0	1	0	4	2	2	0	0	12
21 Sulawesi Utara	5	1	1	0	2	1	0	0	0	0	5
22 Sulawesi Tenggara	5	0	0	4	1	0	0	0	0	0	5
23 Sulawesi Tengah	8	2	0	3	2	0	1	0	0	0	8
24 Sulawesi Selatan	25	2	0	9	2	6	0	6	0	0	25
25 Maluku	5	0	0	2	0	1	0	0	2	0	5
26 Irian Jaya	14	1	0	5	0	1	0	4	3	0	14
27 Banten	6	1	0	0	0	0	1	2	2	0	6
28 Gorontalo	3	0	0	0	0	2	1	0	0	0	3
29 Bangka-Belitung	3	0	0	0	1	1	1	0	0	0	3
30 Muluku Utara	3	1	0	2	0	0	0	0	0	0	3
Total	343	28	6	70	25	79	20	97	13	5	343

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): Abolished

Source: Ministry of Agriculture (July 2003)

Table 3.1.21 Deployment of Extension Officers by Province

Province	Kabupaten	Kecamatan	Desa	BIPP	BPP	Farmers Group	Famers Household	Extension Officer
1 DI. Aceh	13	185	4,992	12	155	8,457	443,351	1,137
2 Sumatera Utara	19	262	1,997	11	242	18,298	1,240,765	1,814
3 Sumatera Barat	15	151	1,545	1	107	7,366	534,686	1,199
4 Riau	14	84	348	5	72	7,059	419,017	1,106
5 Jambi	10	80	589	5	55	5,743	444,428	895
6 Bengkulu	4	49	674	4	35	3,455	456,074	679
7 Lampung	10	104	1,147	1	81	10,299	798,564	1,042
8 Sumatera Selatan	7	135	1,809	3	95	15,783	687,054	1,536
9 Bangka-Belitung	3	36	186	2	13	944	91,370	182
Sumatra	**95**	**1,086**	**13,287**	**44**	**855**	**77,404**	**5,115,309**	**9,590**
10 DKI Jakarta	6	-	-	-	9	369	-	166
11 Jawa Barat	24	487	4,180	10	424	28,646	4,549,350	3,087
12 Banten	5	92	300	3	91	6,663	915,685	511
13 DI. Yogyakarta	5	75	161	2	50	4,991	305,881	495
14 Jawa Tengah	35	545	6,288	9	444	35,070	4,710,849	3,316
15 Jawa Timur	37	564	5,287	15	564	28,928	5,740,506	3,410
Jawa	**112**	**1,763**	**16,216**	**39**	**1,582**	**104,667**	**16,222,271**	**10,985**
16 Bali	8	37	156	1	31	4,885	533,119	524
17 NTB	7	88	306	5	63	8,255	449,367	1,001
18 NTT	14	128	1,180	9	124	6,106	623,463	1,092
Bali Nusa Tenggra	**29**	**253**	**1,642**	**15**	**218**	**19,246**	**1,605,949**	**2,617**
19 Kalimantan Barat	0	104	430	-	71	6,973	361,923	1,056
20 Kalimantan Tengah	6	85	731	6	56	5,129	225,361	1,240
21 Kalimantan Selatan	11	105	918	3	90	9,194	395,926	1,169
22 Kalimantan Timur	12	73	7,457	5	46	3,738	60,695	299
Kalimantan	**29**	**367**	**9,536**	**14**	**263**	**25,034**	**1,043,905**	**3,764**
23 Sulawesi Utara	5	79	1,173	4	76	4,235	306,768	830
24 Gorontalo	3	21	-	2	23	-	113,484	301
25 Sulawesi Tenggara	5	77	520	5	71	5,246	197,039	1,045
26 Sulawesi Tengah	8	74	879	5	55	5,164	291,429	940
27 Sulawesi Selatan	24	256	1,784	15	511	5,530	793,606	2,244
Sulawesi	**45**	**507**	**4,356**	**31**	**736**	**20,175**	**1,702,326**	**5,360**
28 Maluku	5	8	187	1	4	223	-	101
29 Muluku Utara	3	31	59	3	14	1,092	95,927	25
30 Irian Jaya	14	111	25	8	70	2,746	107,470	590
Maluku & Irian Jaya	**22**							
Total	**332**	**3,976**	**45,037**	**143**	**3,654**	**246,526**	**25,689,760**	**32,316**

Source: Internal data from Ministry of Agriculture, June 2002

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	**1,847,000**	**540,105**	**29.00%**
1. BANK BRI	675,000	288,736	43.00%
2. BANK BNI	200,000	46,592	23.00%
3. BANK MANDRI	200,000	12,614	6.00%
4. BANK BUKOPIN	340,000	52,610	15.00%
5. BANK BCA	100,000	9,306	9.00%
6. BANK AGRO NIAGA	132,000	119,340	90.00%
7. BANK BII	50,000	0	0.00%
8. BANK NIAGA	50,000	6,815	14.00%
9. BANK DANAMON	100,000	4,092	4.00%
II. Regional Development Bank	**235,240**	**45,709**	**19.00%**
1. BPD DKI	2,000	0	0.00%
2. BPD JABAR	25,000	4,814	19.00%
3. BPD JATENG	28,370	973	3.00%
4. BPD DIY	1,500	618	41.00%
5. BPD JATIM	30,000	12,336	41.00%
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	2,701	27.00%
10. BPD LAMPUNG	1,500	644	43.00%
11. BPD BALI	100,000	21,097	21.00%
12. BPD KALBAR	1,500	468	31.00%
13. BPD KALTENG	5,000	295	6.00%
14. BPD KALSEL	1,500	39	3.00%
15. BPD KALTIM	1,500	362	24.00%
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	0	0.00%
20. BPD PAPUA	2,000	172	9.00%
Total	**2,082,240**	**585,814**	**28.00%**

Note: Data at the end of May 2002.
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	0	0	1,456	2,005
2. Sumatera Utara	3,418	0	493	2,331	450	6,692
3. Sumatera Barat	1,455	0	517	0	65	2,037
4. Riau	51	0	426	22	15	514
5. Jambi	218	0	0	75	0	293
7. Sumatera Selatan	5,696	0	894	353	175	7,118
6. Bengkulu	40	0	0	0	0	40
8. Lampung	2,105	0	3,782	96	1,230	7,213
Sumatra						
9. DKI Jakarta	376	0	0	0	799	1,175
10. Jawa Barat	34,094	12,980	10,127	1,393	11,403	69,997
11. Jawa Tengah	16,661	95,412	3,750	171	10,823	126,817
12. DI. Yogyakarta	3,273	5,000	722	47	314	9,356
13. Jawa Timur	26,714	240,832	10,201	798	10,364	288,909
Jawa						
22. Bali	14,796	0	19,068	71	9,356	43,291
23. NTB	5,312	0	0	0	225	5,537
24. NTT	953	0	137	0	287	1,377
Bali & Nusa Tenggala						
14. Kalimantan Barat	66	0	385	155	145	751
15. Kalimantan Tengah	53	0	124	171	55	403
16. Kalimantan Selatan	1,843	0	81	0	150	2,074
17. Kalimantan Timur	166	0	0	362	90	618
Kalimantan						
18. Sulawesi Utara	597	0	0	0	0	597
19. Sulawesi Tengah	0	0	0	0	0	0
21. Sulawesi Selatan	2,637	200	304	314	1,274	4,729
20. Sulawesi Tenggara	1,131	0	0	0	0	1,131
Sulawesi						
25. Maluku	0	0	0	0	0	0
26. Papua	2,790	0	100	100	150	3,140
Maluku & Papua						
Total	124,994	354,424	51,111	6,459	48,826	585,814

Note: Figures in the table are data at the end of May 2002.

Source: Ministry of Agriculture (Internal Document)

Table 3.1.25 Current Situation of P4K as of September 2001

Project Coverage

Povince	District	Sub-District	Village	Field Extension Worker	Self-Help Group
West Java	20	209	1,458	956	11,494
Central Java	24	278	1,535	983	14,549
DI Yogyakarta	4	56	299	252	4,983
East Java	24	234	1,376	792	15,381
Bali	9	46	414	294	3,792
West Nusa Tenggara	7	51	336	298	7,796
Riau	4	23	186	162	919
Bengkulu	4	25	227	204	401
South Sumatera	4	19	161	106	862
Lampung	7	36	173	178	788
South Kalimantan	6	29	141	147	655
South Sulawesi	9	37	246	197	1,613
Total	122	1,043	6,552	4,569	63,233

Source) Brochure for P4K, Ministry of Agriculture

Disbursement of Credit (Rp)

Povince	Credit Disbursed
West Java	32,268,585
Central Java	56,928,929
DI Yogyakarta	12,938,435
East Java	52,181,361
Bali	19,199,071
West Nusa Tenggara	35,179,324
Riau	1,864,100
Bengkulu	1,672,050
South Sumatera	1,462,900
Lampung	1,414,300
South Kalimantan	2,169,600
South Sulawesi	5,866,200
Total	223,144,855

Situation on Operation of P4K Creidt

(1) Total credit received by the groups (Rp.)	223,144,855
(2) Total repayment (Rp.)	143,315,370
(3) Total credit outstanding (Rp.)	79,829,485
(4) Total arrears	6,331,153
Arrears to credit disbursement (%)	2.84%
Arrears to credit outstanding (%)	7.93%

Table 3.2.1 List of New Legal Document in 2002 to 2003 on Fisheries Sector (1/3)

Document No.	Contents
Article No. 03 of Ministerial Decree in 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). • Job Description of Steering Committee: 1) to supervise the project, 2) to decide the policies concerning the project. • Job Description of Technical Committee: 1) To negotiate with the fund giver, 2) To guide the team technically, 3) To facilitate the project implementation. • 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
Article No. 10 of Ministerial Decree in 2003	• License of Fishing or *Izin Usaha Perikanan* (IUP) in fish capture • Fish Capture Letter or *Surat Penangkapan Ikan* (SPI) • Permit Letter of Fishing Ship or *Surat Izin Kapal Pengangkut Ikan* (SIKPI)
Article No. 14 of Ministerial Decree in 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
Article No. 01 of Ministerial Decree in 2002	• Fisheries Product Quality Management System • The system is the Integrated Quality Management (PMMT) based on the Hazard Analysis Critical Control Point (HACCP) concept • PMMT implementation is classified into five groups: Level I (Very Excellent), Level II (Excellent), Level III (Good), Level IV (Sufficient), Level V (Failed) • Each exported fisheries product must be completed with Certificate of Quality or Health Certificate issued by the Testing Laboratorium. ➢ 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.

Table 3.2.1 List of New Legal Document in 2002 to 2003 on Fisheries Sector (2/3)

Document No.	Contents
Article No. 03 of Ministrial Decree in 2002	• Log Book of Fish Capture and Transportation ➢ Log Book of Fish Capture and Transportation consists of Form A, Form B, and Form C ➢ Form A contains reports of each fish capture and transportation. This form is filled by the Captain ➢ Form B contains physical and administration data of fisheries ship in conducting fish capture and transportation. The form is filled by the Fisheries Supervisor. ➢ Form C contains information of Operational Qualification license for fish capture or fish transportation ship which issued by the Fisheries Supervisor ➢ 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). ➢ LBP will be given to the ship's Captain by the Fisheries Supervisor if the ship has fulfilled technical and administration terms and conditions
Article No. 08 of the Ministrial Decree in 2002	• 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 ➢ 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 ➢ Application subsystem, consists of application program to fulfill the need of data description and job units in the Department. • The structures are implemented through facilitation of data analysis software and hardware, data communication network, softwares, human resources, and information system
Article No. 10, 2002	• 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: ➢ *Strategic plan*. This is a plan, which is based on provincial and cities problem's identification, which states a clear planning on the implementation. ➢ *Zoning.* This is a plan that allocates marine resources into. zone frames ➢ *Management plan*. This is a plan that consists of conservatory and protection planning, also the handling of institutional or law problems. ➢ *Action plan*. This is the detail of programs and projects

Table 3.2.1 List of New Legal Document in 2002 to 2003 on Fisheries Sector (3/3)

Document No.	Contents
Article No. 17 of Ministrial Decree in 2002	• Implementation of Coordination Meeting and Technical Meeting of The Ministry of Marine and Fisheries • The meetings was held in May, 2002 in Jakarta • The meetings' theme was "Marine and Fisheries Development Acceleration through A Synergy Between Sectors and Community" • The meetings' committee consists of Steering Team, Composing Team, and Organizing Team ➢ 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. ➢ Job Description of Composing Team: 1) Assist the Steering Team in composing the result of the meetings, 2) Compose the result's proceedin ➢ 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, • The Steering Team responsibles to the Minister of Marine and Fisheries. While the Organizing Team and The Composing Team responsible to the Steering Team

Table 3.2.2 Marine Capture Production by Species 1990 - 2000

(unit: ton)

	1990	1991	Average in 90 & 91 (A)	1993	1995	1997	1999	2000	Average in 99 & 00 (B)	Annual Growth Rate (A) to (B)
1. Flat Fishes	4,539	1,262	**2,901**	1,898	2,214	7,407	5,074	4,236	**4,655**	4.84%
2. Slip mouths	41,768	43,353	**42,561**	52,800	66,220	89,403	91,219	69,512	**80,366**	6.56%
3. Goat fishes	9,712	11,235	**10,474**	17,130	17,612	24,203	26,252	27,948	**27,100**	9.97%
4. Red snappers	46,136	44,730	**45,433**	55,853	52,827	69,585	66,492	62,306	**64,399**	3.55%
5. Groupers	15,797	16,197	**15,997**	30,015	34,004	42,164	43,472	48,422	**45,947**	11.13%
6. Giant seaperch	25,236	22,520	**23,878**	36,801	47,627	55,942	65,173	68,788	**66,981**	10.87%
7. Yellow tail	16,705	21,183	**18,944**	21,998	42,693	38,358	37,944	33,712	**35,828**	6.58%
8. Drums	29,604	28,008	**28,806**	36,360	39,798	44,837	56,991	52,254	**54,623**	6.61%
9. Sharks and Rays	73,272	76,827	**75,050**	85,138	98,098	95,998	108,393	113,626	**111,010**	3.99%
10. Scads	170,725	213,214	**191,970**	203,351	247,305	276,924	261,138	255,375	**258,257**	3.01%
11. Trevallies	90,147	95,989	**93,068**	105,946	116,769	125,504	128,795	129,913	**129,354**	3.35%
12. Mullets	21,688	24,060	**22,874**	28,942	31,928	35,478	35,437	36,077	**35,757**	4.57%
13. Anchovies	127,797	135,633	**131,715**	142,786	157,216	183,591	163,117	173,944	**168,531**	2.50%
14. Fringescale sardinella	134,972	136,626	**135,799**	152,560	161,096	156,914	162,710	172,219	**167,465**	2.12%
15. Indian Oil Sardinella	113,515	145,055	**129,285**	122,039	98,905	138,636	89,286	88,744	**89,015**	-3.66%
16. Indian mackerels	145,377	144,094	**144,736**	173,946	193,890	201,404	201,466	207,037	**204,252**	3.50%
17. Tunas	88,666	78,838	**83,752**	76,650	101,688	116,214	136,474	163,241	**149,858**	5.99%
18. Skipjack tuna	114,168	132,695	**123,432**	147,291	159,667	187,206	244,847	236,275	**240,561**	6.90%
19. Eastern little tuna	139,967	150,439	**145,203**	160,950	184,400	212,511	236,111	250,522	**243,317**	5.30%
20. Other fish	627,259	299,013	**463,136**	364,696	381,065	413,080	470,576	508,966	**489,771**	0.56%
21. Prawns	143,993	150,028	**147,011**	174,869	179,102	208,231	235,621	245,436	**240,529**	5.05%
22. Other crustaceans	10,833	14,097	**12,465**	19,312	24,309	30,290	26,730	27,351	**27,041**	8.05%
23. bivalves and gastropods	36,503	36,289	**36,396**	50,910	64,118	58,048	51,541	52,331	**51,936**	3.62%
24. Cephalopods	17,906	17,906	**17,906**	24,017	32,199	38,165	46,842	51,375	**49,109**	10.62%
25. Other molluscas	662	392	**527**	851	149	330	544	358	**451**	-1.55%
26. Jellyfish	1,346	2,655	**2,001**	26,443	123,076	17,719	32,652	29,516	**31,084**	31.56%
27. Other invertebrate	2,538	3,287	**2,913**	3,065	3,585	4,747	5,142	5,844	**5,493**	6.55%
28. Seaweeds	119,276	97,815	**108,546**	118,395	111,575	125,979	23,152	42,712	**32,932**	-11.24%
29. Others	-	394,172	**197,086**	451,277	519,795	614,093	629,253	649,151	**639,202**	12.49%
Total	**2,370,107**	**2,537,612**	**2,453,860**	**2,886,289**	**3,292,930**	**3,612,961**	**3,682,444**	**3,807,191**	**3,744,818**	**4.32%**

Remark: Annual growth rate is average on

Source: Narional Fishery Statistics 2001 and 2002.

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	Growth Rate
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	18.95%
2. Payang	198,764	206,127	206,098	267,449	242,450	217,976	245,257	296,342	318,597	385,342	459,241	8.74%
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	11.95%
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	2.14%
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	4.41%
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	4.40%
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	5.88%
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	1.10%
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	5.82%
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	6.28%
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	9.85%
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	4.19%
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	6.74%
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	3.89%
15. Trolling	76,750	88,799	82,306	92,774	93,131	99,466	122,043	103,525	154,532	119,026	127,704	5.22%
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	2.96%
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	-0.69%
18. Traps	41,076	57,099	53,767	71,359	60,399	74,040	75,200	82,096	70,214	70,455	68,808	5.29%
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	0.88%
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	-9.38%
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	7.82%
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	13.70%
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**	**4.85%**
		7.07%	6.09%	7.21%	6.72%	6.91%	2.75%	6.78%	3.07%	-1.11%	3.39%	

Remark: Growth rate is annual average during the period of 10 years from 1990 to 2000.

Source: Narional Fishery Statistics 2001 and 2002.

Table 3.2.4 Trends of Aquaculture Production by Target Species

(unit: ton)

		1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	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	5.27%
	Tilapia	33,874	31,488	34,064	39,964	38,025	45,324	46,691	50422	44,301	51,424	40,926	1.91%
	Catfishes	3,739	4,910	6,330	8,042	9,786	12,907	15,627	24,187	19,857	27,350	32,146	24.00%
	Gouramies	12,073	10,814	12,379	16,388	11,204	15,759	17,525	17,511	18,260	19,434	21,156	5.77%
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	5.31%
	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	3.36%
Seawater	**Seaweeds**	-	-	-	-	-	-	-	-	-	133,720	187,471	40.20%
	Fish (grouper, etc.)	-	-	-	-	-	-	-	-	-	2,249	2,181	-3.02%

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	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	1.27%
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	17.18%
3. Paddy field culture	200,886	271,536	189,854	247,421	258,910	270,066	277,157	256,039	151,373	237,423	300,416	4.11%
4. Brackish water aquaculture	89,327	104,303	109,173	110,041	121,647	125,705	132,450	132,388	144,411	183,173	183,173	7.45%
5. Floating cage culture	-	-	-	-	-	-	-	-	-	8,237	5,115	-37.90%
6. Marine culture	-	-	-	-	-	-	-	-	-	6,068	17,414	186.98%
Total	**955,012**	**1,083,582**	**1,023,892**	**1,159,222**	**1,215,557**	**1,239,014**	**1,256,774**	**1,208,181**	**1,063,140**	**1,202,656**	**1,285,153**	**3.01%**

Table 3.2.6 Trends of Aquaculture Area

(unit: ha)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	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	4.50%
2. Freshwater cage culture	7	11	10	18	15	46	63	130	135	34	76	26.93%
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	4.02%
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	3.50%
5. Floating cage culture	-	-	-	-	-	-	-	-	-	32,144	37,413	16.39%
6. Marine culture	-	-	-	-	-	-	-	-	-	48,775	122,776	151.72%

Remark: Growth rate is an annual average during the period for 10 years from 1990 to 2000.
Source: National Fishery Statistics 2001 and 2002.

Table 3.2.7 Number of Aquaculture Business Units by Region

(unit: 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
Java	582,263	2,945	184,044	90,661	3,714	-	863,627
Bali-NTT	13,638	880	10,681	4,848	142	2,763	32,952
Kalimantan	10,819	17,805	1,130	8,016	-	-	37,770
Sulawesi	11,552	1,189	18,392	37,688	-	698	69,519
Maluku-Irianjaya	11,474	208	-	558	-	-	12,240
Total	736,079	31,676	237,423	183,173	8,237	6,068	1,202,656
(2000)							
Sumatra	110,946	7,489	45,906	41,370	1,412	3,178	210,301
Java	590,183	8,943	219,182	91,601	3,583	70	913,562
Bali-NTT	12,292	-	14,016	7,214	99	3,334	36,955
Kalimantan	10,130	13,874	1,177	5,085	21	195	30,482
Sulawesi	11,908	1,390	20,135	41	-	10,637	44,111
Maluku-Irianjaya	11,669	211	-	571	5,115	-	17,566
Total	747,128	31,907	300,416	186,485		17,414	1,283,350

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	-
Java	5,250,470	3,365,344	5,709,308	-	1,062,708	1,966,725	-
Bali-NTT	43,217	100,877	638,754	-	672	6,398	-
Kalimantan	920,460	1,113	361,542	-	757	571	-
Sulawesi	897,726	793	2,191	-	-	-	-
Maluku-Irianjaya	433,320	157,091	295,682	-	213,310	-	-
Total	8,103,032	3,695,828	7,335,810	-	1,365,032	2,032,695	-
(2000)							
Sumatra	304,474	119,701	188,902	140,700	249,250	113,032	1,116,059
Java	2,166,478	3,858,324	229,477	41,531	599,372	215,768	7,110,950
Bali-NTT	12,125	2,011	4,917	655	1,436	2,048	23,192
Kalimantan	107,734	151	27,792	-	130	-	135,807
Sulawesi	864,183	494	35,926	-	-	-	900,603
Maluku-Irianjaya	913,641	79,215	226,163	-	-	15,000	1,234,019
Total	4,368,635	4,059,896	713,177	182,886	942,488	345,848	10,612,930

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	-
Java	32,773	12,941	26,355	-	20,116	14,229	-
Bali-NTT	699	158	593	-	219	279	-
Kalimantan	832	146	501	-	27	26	-
Sulawesi	3,828	237	1,288	-	167	372	-
Maluku-Irianjaya	396	127	643	-	277	5	-
Total	57,278	15,633	37,555	-	24,991	17,815	-
(2000)							
Sumatra	24,288	2,204	6,143	1,208	5,960	3,251	43,054
Java	41,666	12,705	22,825	10,772	22,208	17,187	127,363
Bali-Nusatenggara	841	192	105	-	135	309	1,582
Kalimantan	1,252	39	517	-	217	25	2,050
Sulawesi	6,877	276	855	77	191	379	8,655
Maluku-Irianjaya	398	126	297	-	280	5	1,106
Total	75,322	15,542	30,742	12,057	28,991	21,156	183,810

Source: National Fishery Statistics 2001 and 2002.

Table 4.4.1 List of On-going Projects of Asian Development Bank (ADB) (1/2)

Name of Projects (Executing Agency)	Approved Date/ Closing Date	Related Area	Description
1. Marine and Coastal Resources Management Project (Ministry of Marine Affairs and Fisheries)	Oct. 26, 2000 Jun. 30, 2007	n.a.	Assistance in sustainable management of marine and coastal resources and protection of the environment in a decentralized framework of government.
2. 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.
3. 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.
4. Coral Reef Rehabilitation and Management (Indonesian Institute of Science)	Mar. 26, 1998 Oct. 31, 2002	Riau, North/West Sumatera,	Assistance in rehabilitation and management of coral reefs throughout Indonesia in order to protect livelihoods of coastal communities as well as to conserve biodiversity.
5. Rural Income Generation (n.a.)	Nov. 25, 1997 Sep. 30, 2005	n.a.	n.a.
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
7. 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, 2003	West/Central Java (south coast)	Assistance in improvement of the quality of life for populations in the project area.
8. Coastal Community Development and Fisheries Resource Management (Ministry of Agriculture)	Nov. 04, 1997 Dec. 31, 2003	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.
9. Participatory Development of Agriculture Technology (n.a.)	Jul. 01, 1997 Sep. 30, 2004	n.a.	n.a.

n.a.: no information available

Table 4.4.1 List of On-going Projects of Asian Development Bank（ADB）(2/2)

Name of Projects	Approved Date/ Closing Date	Area Concerned	Description
10. Segara Anakan Conservation and Development (Ministry of Settlement and Regional Infrastructure, Ministry of Home Affairs)	Oct. 17, 1996 Sep. 30, 2002	Central/West Java	To conserve, develop and sustainably 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.
11. Integrated Pest Management for Smallholder Estate Crops (Directorate General of Estates in Ministry of Agriculture)	Sep. 26, 1996 Sep. 30, 2004	12 Provinces	Promotion of the adoption of cost-effective, environmentally-sound integrated pest management (IPM) practices by strengthening selected Government institutions and farmer groups, which will (i) enhance and protect the environment, and (ii) improve product quality and increase the productivity and farm income of smallholder estate crop farmers.
12. North Java Flood Control Sector Project (Ministry of Settlement and Regional Infrastructure)	Jan. 18, 1996 Mar. 31, 2002	West/Central Java (north coast)	Assistance in improvement of the quality of life for populations in the project area.
13. Farmer-Managed Irrigation Systems Project (Ministry of Settlement and Regional Infrastructure)	Sep. 21, 1995 Mar. 31, 2003	South/North Sulawesi, Central Tenggara, West Java and Yogyakarta	Assistance in the rehabilitation and improvement of farmer-managed irrigation systems to meet farmers' needs as perceived and requested by the farmers themselves.
14. Sulaweshi Reinfed Agriculture Development Project (n.a.)	Jan. 31, 1995 Sep. 30, 2002	n.a.	n.a.
15. Capacity Building in the Water Resources Sector (n.a.)	Dec. 06, 1994 Jun.30, 2002	n.a.	n.a.

n.a.: no information available

Table 4.4.2 List of On-going Projects of the World Bank

Name of Projects (Executing Agency)	Approved Date/ Closing Date	Related Area	Description
1. Elephant Landscapes Project (Fauna & Flora International)	Dec.13,1999 Dec.31,2002	n.a.	n.a.
2. Decentralized Agricultural and Forestry Extension Project (n.a.)	Aug. 31,1999 Mar. 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.
3. Water Resources Sector Adjustment Loan Project (BAPPENAS)	May 18,1999 Jun. 30,2003	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.
4. 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.
5. Convention on Biological Diversity Project (Ministry of Home Affairs, Ministry of Agriculture)	Apr.30,1996 Sep. 30, 2002	n.a.	n.a.
6. Sulawesi Agricultural Area Development Project (Ministry of Home Affairs, Ministry of Agriculture,and the local governments in the two participating)	Apr.30,1996 Jun. 30, 2003	Sulawesi Tengah and Sulawesi Tenggara	Assistance in reducing the incidence of poverty in the related provinces through the increase of rural incomes, the promotion of equitable regional development, the promotion of environmentally sustainable farming practices, and the strengthening of local level institutions.
7. Nusa Tenggara Agricultural Area Development Project (Ministry of Home Affairs, Ministry of Agriculture, and the local governments in the two participating provinces)	Mar.5,1996 Sep. 30, 2002	Nusa Tenggara Barat and Nusa Tenggara Timur	Assistance to raise smallholder incomes, strengthen local level institutions, and foster broad-based participation at the grassroots level.
8. Agricultural Research Management Project (Agency for Agricultural Research and Development)	May16,1995 Dec. 31, 2002	12 Provinces (17 units of Assessment Institutes for Agricultural Technology)	Assistance to strengthen regional agricultural Research and Development (R&D), based on local human and natural resources, by collaboratively developing and transferring location-specific technology which is market-oriented and client-driven to support agro-business and agro-industry development.
9. Java Irrigation Improvement and Water Resources Management Project (Ministry of Home Affairs, Ministry of Agriculture)	Jun. 21,1994 Dec. 31, 2002	Central Java West Java Yogyakarta	Assistance to support the institutional reforms and basin focused operations, expand the Irrigation Service Fee program for cost recovery, privatize small public schemes, support the implementation of remedial works, and complete technically and economically viable rehabilitation of unimproved public irrigation systems.

n.a: no information available

Table 4.4.3 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 4.4.3 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.	- 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.	- Revised Draft on Food Security, Rural Development and Rice Policy: An Integrated Perspective, July 2001
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 security alone. - Food security is practically included in the projects in the context of rural development, poverty and environment.	- Projects are implemented in selected kabupatens with the wide range for the sectors of agriculture, rural development and natural 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.	- Interview to the Senior Sector Specialist, May and August 2002.

Table 4.4.3 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
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 includes food balance projection, focusing on starch basis.	- 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

Figures

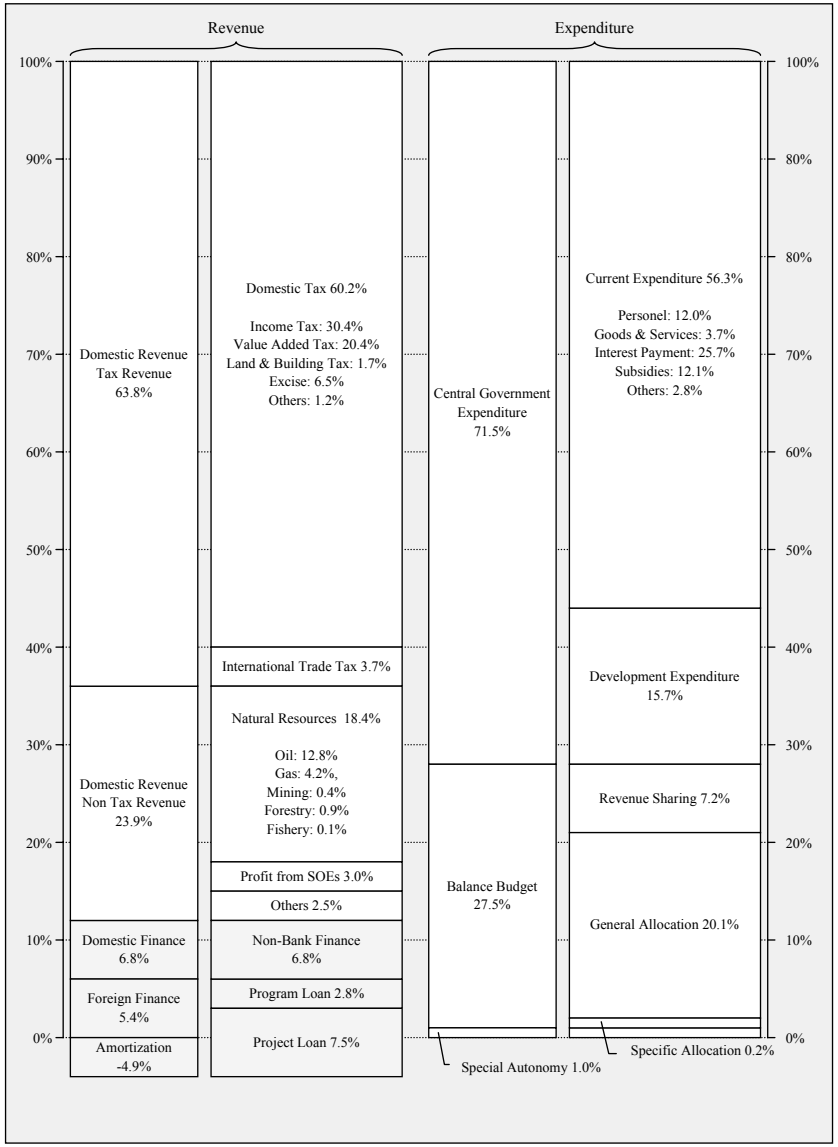


Fig. 2.1 State Revenue and Expenditure (APBN 2002)

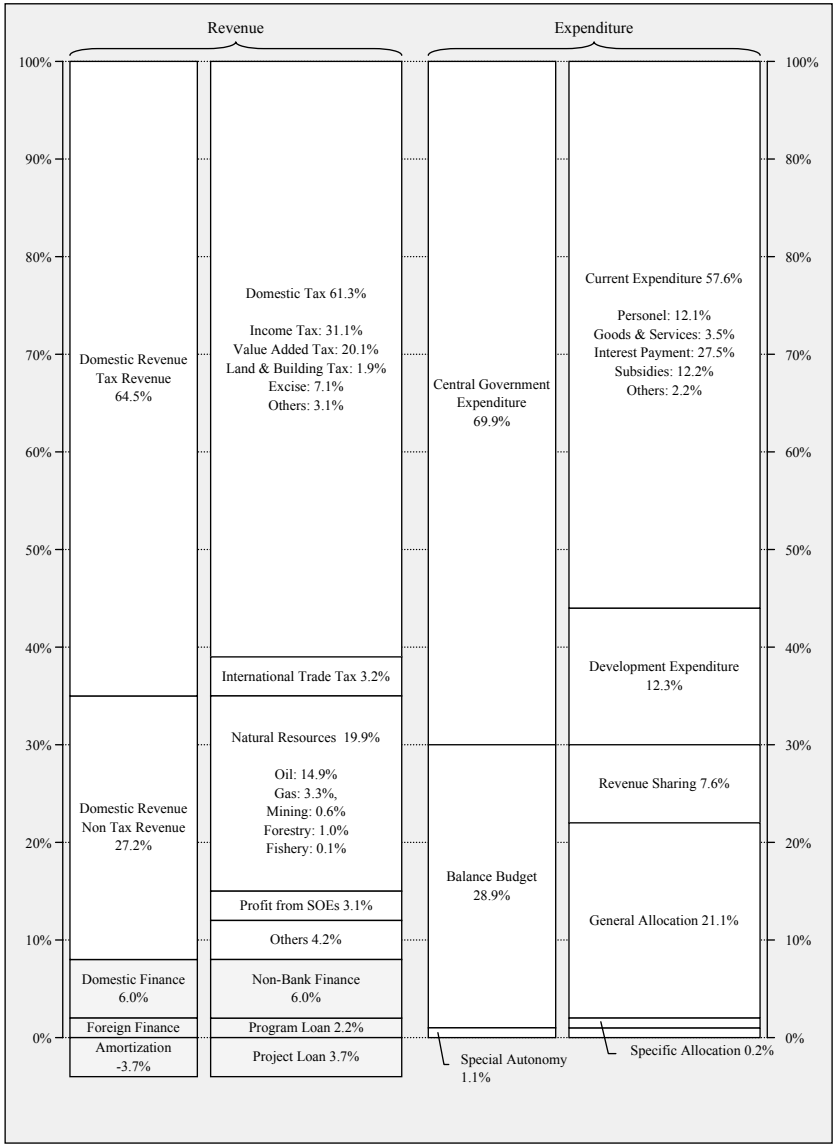
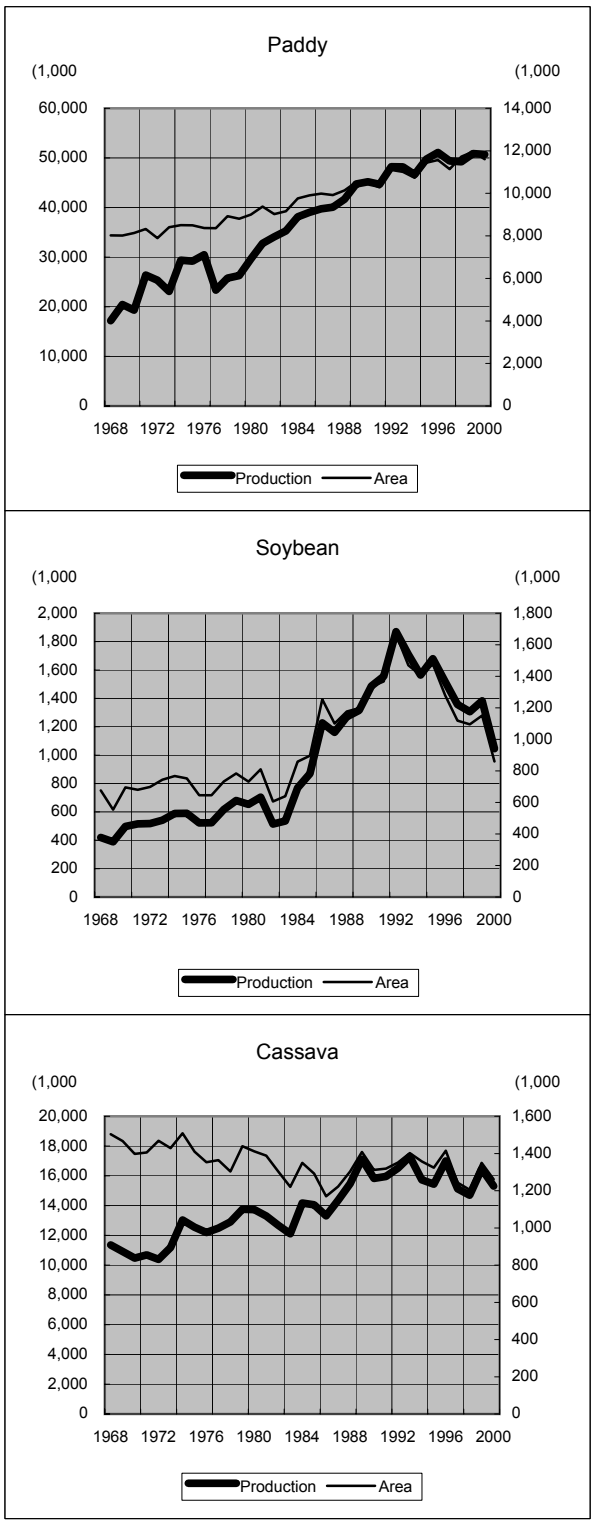
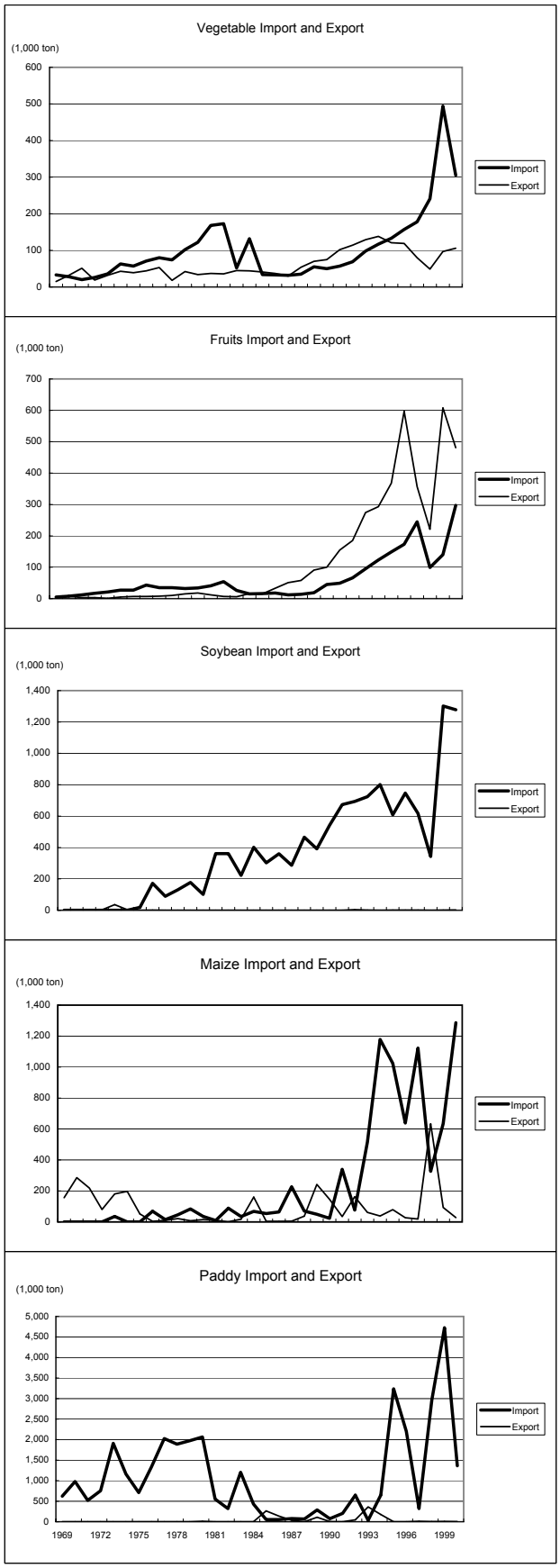


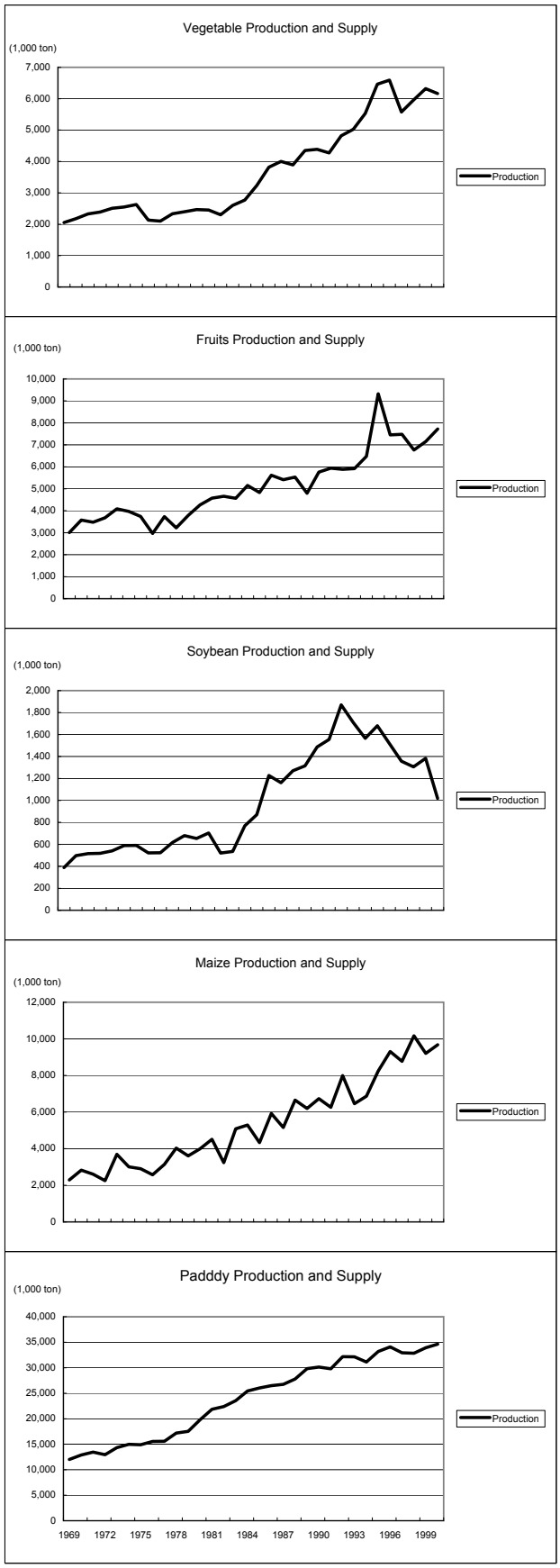
Fig. 2.2 Realization of State Revenue and Expenditure (APBN 2002)



Source: Table 3.1.6 of this report

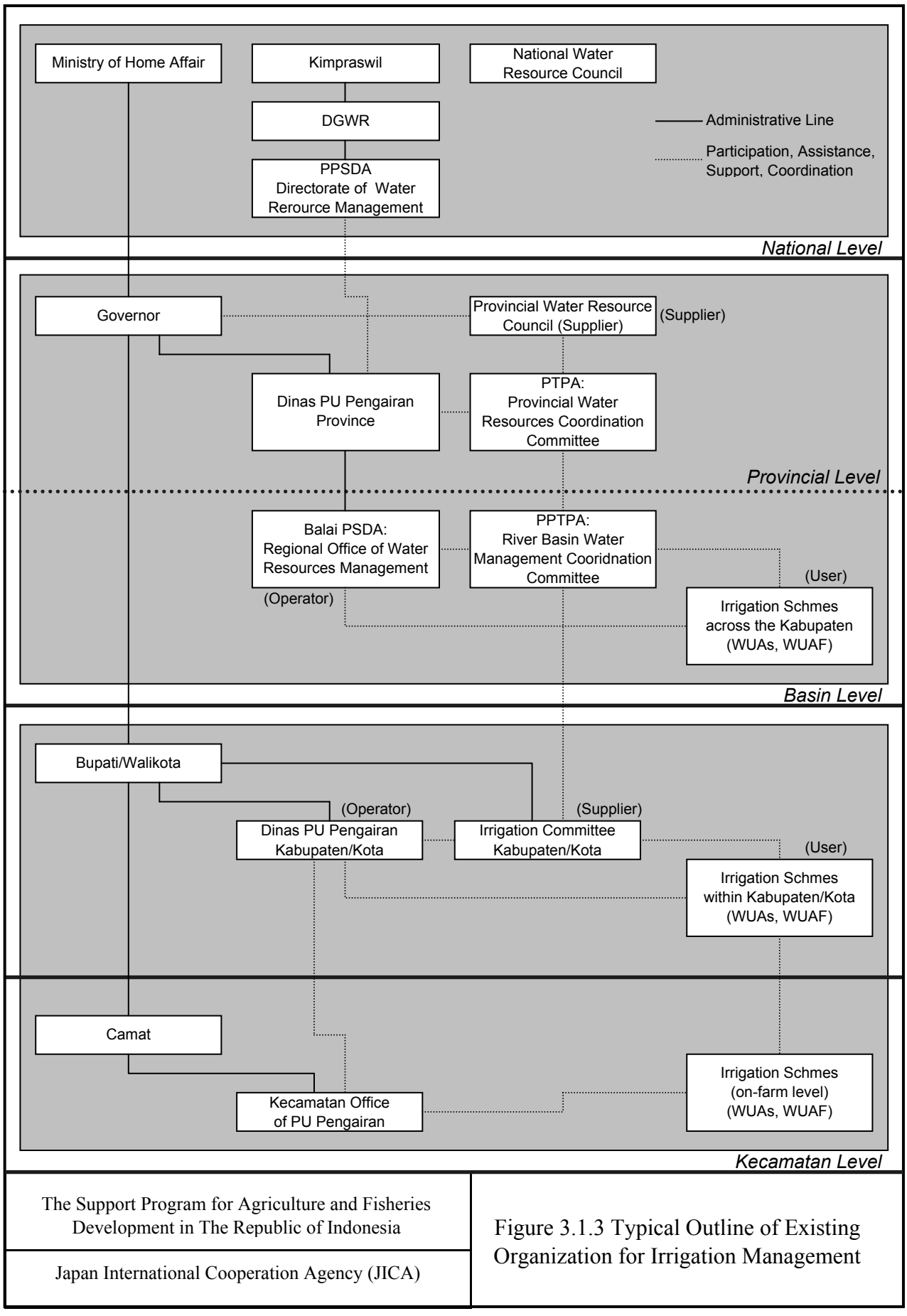
The Support Program for Agriculture and Fisheries Development in The Republic of Indonesia	Figure 3.1.1 Transition of Harvested Area and Production of Major Food Crops
Japan International Cooperation Agency (JICA)	





Source: FAO

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)	



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

Japan International Cooperation Agency (JICA)

Figure 3.1.3 Typical Outline of Existing Organization for Irrigation Management

		67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	00	01	02
	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 ~)																																				

	Project-type Technology Cooperation			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	Tjihea 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	Remote sensing engineering project for development of agricultural infrastructure	Agriculture		Apr 80	Mar 87
14	Leading engineer training project	Agriculture		Mar 79	Mar 88
15	Irrigation Engineering Service Center Project	Irrigation		Apr 81	Mar 88
16	The food crop protection project	Agriculture		Jun 80	Mar 87
17	Veterinary drug certification project	Stockbreeding		Apr 84	Mar 91
18	Agricultural research strengthening project	Agriculture	Research	Apr 86	Mar 91
19	The strengthening of artifial insemination center project	Stockbreeding		Apr 86	Mar 95
20	Applied agricultural machinery technology development project	Agriculture		Apr 87	Jul 93
21	The food crop protection project (Phase 2)	Agriculture		Apr 87	Mar 92
22	The Academic development of the graduate program at the faculty of agricultural engineering and technology	Agriculture	Research	Apr 88	Mar 93
23	The Academic development of the graduate program at the faculty of agricultural engineering and technology (A/C)	Agriculture	Research	Apr 88	Mar 93
24	The remote sensing engineering project phase 2 for the development of agricultural infrastructure	Agriculture		Jun 88	Jun 94
25	The Aftercare Technical Cooperation for the Integrated Agr. & Rural Development Project in Southeast Sulawesi Province	Rural		Jul 88	Jul 93
26	Shrimp culture project	Fishery		Oct 88	Oct 93
27	Seed potato multiplication and training project	Agriculture		Oct 92	Sep 97
28	The research & development for Multi-species Hatchery Project	Fishery		Apr 94	Apr 99
29	Irrigation Engineering Service Center Project	Irrigation		Jun 94	Jun 99
30	The Agricultural Statistics Technology Improvement & Training Project in the Republic of Indonesia	Agriculture	Statistics	Oct 94	Sep 98
31	The quality Soybean Seed Multiplication and Training Project	Agriculture		Jul 96	Jun 01
32	Agricultural research strengthening project (A/C)	Agriculture	Research	Dec 96	Dec 98
33	Dairy Technology Improvement Project in Indonesia	Stockbreeding		Mar 97	Mar 02
34	Project of the center for development of appropriate agricultural engineering technology (A/C)	Agriculture		Apr 97	Mar 99
35	The Agricultural Statistics Technology Improvement & Training Project (F/U)	Agriculture	Statistics	Oct 98	Sep 01
36	Development of High Quality Seed Potato Multiplication System Project	Agriculture		Oct 98	Sep 03
37	The Research & Development for Multi-species Hatchery Project	Fishery		Apr 99	Mar 01
38	The follow-up technical cooperation for the Irrigation Engineering Service Center Project	Irrigation		Jun 99	Jun 01
39	Project for Improvement of Agricultural Extension and Training System	Agriculture		Sep 99	Mar 02
40	The strengthening of artifial insemination center project (A/C)	Livestock		Jul 00	Jul 02
41	The Aftercare Technical Cooperation for the Integrated Agricultural & Rural Development Project in Southeast Sulawesi Province	Rural		Oct 00	Mar 02
42	Freshwater Aquaculture Development Project in Indonesia	Fishery		Aug 00	Aug 05
43	Project on Strengthening Sulawesi Rural Community Development to Support Poverty Alleviation Programmes	Rural		Mar 97	Feb 02

	Grand aid			(hundred million yen)
	Food aid (KR)			259.09
	Grnat aid for Increased food production (2KR)			427.50
	General Project grant aid (E/N base)			342.27
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	Stockbreeding	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 4.3.1 Japan's Major Cooperation Projects for the Agriculture and Fisheries Sector in Indonesia 1967 - 2002 (1/3)

Grand aid			(100 x10^5 yen)
10 On-farm irrigation facilities	Irrigation	FY81	7.60
11 Veterinary assay laboratory establishment project	Stockbreeding	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	Stockbreeding	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)	Rural	FY94	14.18
28 Basic design study report on the reservoir (embung) development project in East Nusa Tenggara (2/2-1)	Rural	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)	Rural	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

Development Studies			
1 The Wonogiri irrigation and upper sale river improvement project	Irrigation	Jan 75	Sep 76
2 The Riam Kanan irrigation project	Irrigation	Jul 78	Mar 79
3 Lankeme irrigation project	Irrigation	Jul 80	Mar 81
4 The rice post harvest processing improvement project	Agriculture	Aug 81	Nov 82
5 Pre-feasibility study on the upper Komering river basin development project	Irrigation	Sep 79	Mar 82
6 The rice pest and disease forecastingand control project	Agriculture	Jan 82	Mar 82
7 The rice seed production and distribution project	Agriculture	Jan 82	Dec 82
8 Feasibility study on the Bila Irrigation Project	Irrigation	Jun 81	Jun 82
9 Feasibility study on the Sanrego Irrigation Project	Irrigation	May 82	Mar 83
10 Feasibility study on the K-C-C Irrigation Development Project	Irrigation	Jul 82	Jun 83
11 Mosaic photomap project of the dowstrean area of the Negara River Basin in South Kalimantan	Irrigation	Jul 83	Jul 86
12 Main crop production promotion project	Agriculture	Jul 87	Sep 87
13 Feasibility study on Batang Kumu irrigation project In Riau Province	Irrigation	Jun 85	Mar 86
14 Negara river basin overall irrigation development plan study	Irrigation	Mar 88	Jul 89
15 The study on improvement of rice post harvest and marketing in farmer groups	Agriculture	Jan 88	Jan 89
16 Lower Asahan river basin development	Irrigation	Jun 89	Jun 90
17 Feasibility study on air selagan irrigation project in Bengkulu Province	Irrigation	Aug 89	Nov 90
18 The feasibility study on the Nias island irrigation agricultural development project	Irrigation	Aug 90	Aug 91
19 Feasibility study for land development project improvement of land and irrigation systems at farm level	Irrigation	Feb 91	Sep 92
20 Rokan rives basin overall irrigation development plan study	Irrigation	Jan 91	Aug 92
21 Formulation of irrigation development program	Irrigation	Apr 92	Nov 93
22 Coast resources management strengthening project	Fishery	Sep 92	Mar 94
23 The study on the embung development in East Nusa Tenggara and West Nusa Tenggara	Irrigation	Jan 94	Jun 95
24 Gilirang Irrigation Project	Irrigation	Feb 94	Mar 95
25 The study on umbrella cooperation for integrated agricultural abd rural development	Agriculture	Feb 96	Jun 96
26 The study on the improvement in quality of the tropical fruits	Agriculture	Jul 97	Jun 98
27 Rural cooperative activation promotion project	Rural	Feb 96	Feb 99
28 The feasibility study on the integrated agricultural and rural development in Hihgland	Rural	Jul 98	Jun 00
29 The study for improvement irrigation system &empowerment of water users association for enhancement of Turnovar Program	Irrigation	Feb 00	Nov 01
30 The study on Fisheries Infrastructure Support and Coastal Communities Development Plan in Eastern Indonesia	Fishery	Mar 01	Oct 02

Yen Loan (E/N)		EN	LA	4,990.31
1 Brantas Delta irrigation retrieval project	Irrigation	FY1975	Dec 70	3.26
2 North Sumatra tuna fishery port project	Fishery	FY1975	May 72	4.05
3 Way Djepara agriculture irrigation project	Irrigation	FY1976	Mar 73	6.69
4 Brantas river basin irrigation project (II)	Irrigation	FY1976	Sep 71	1.42
5 North Sumatra tuna fishery base maintenance project (II)	Fishery	FY1977	Aug 72	7.82

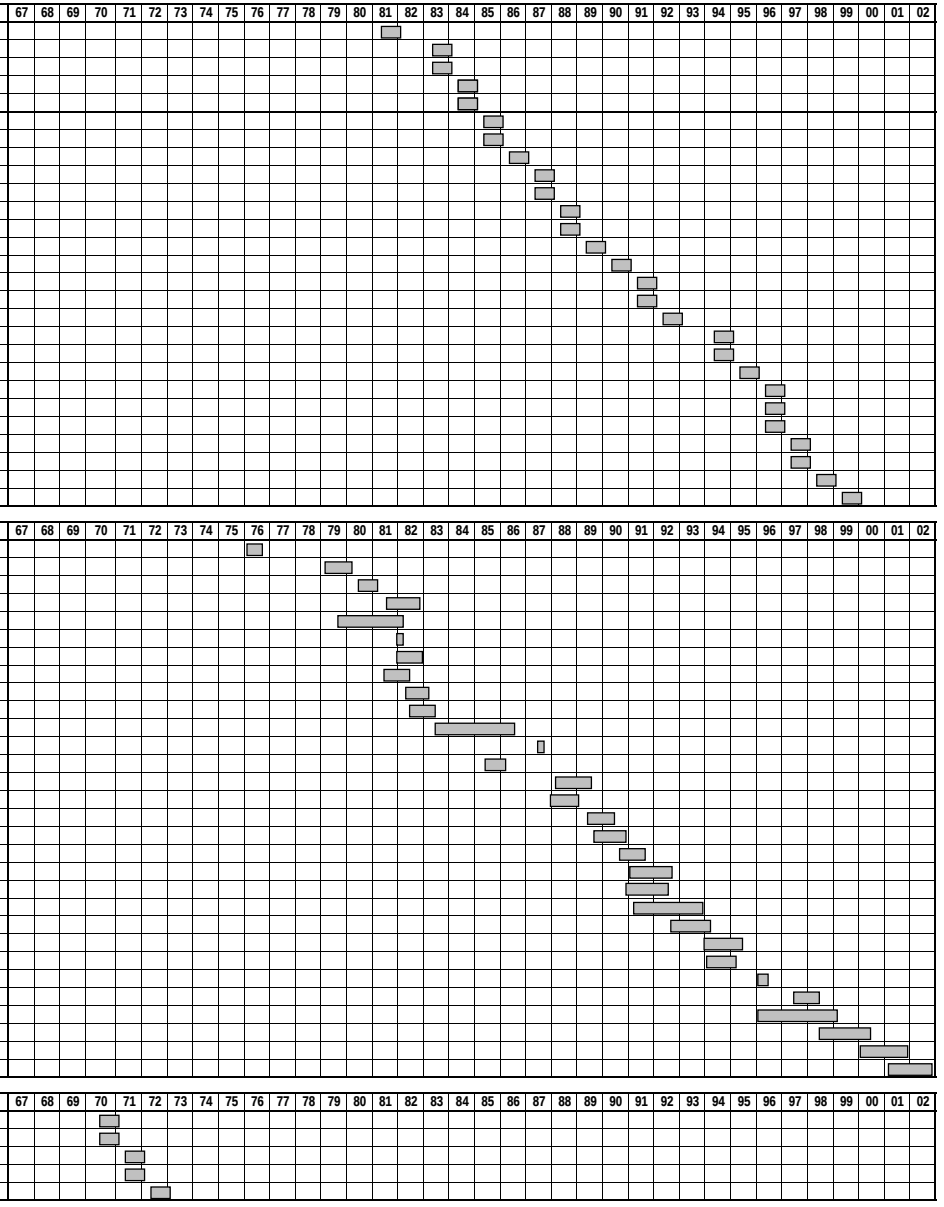


Figure 4.3.1 Japan's Major Cooperation Projects for the Agriculture and Fisheries Sector in Indonesia 1967 - 2002 (2/3)

	Yen Loan (E/N)		EN	LA	
6	Karisurabaya irrigation project	Irrigation	FY1977		1.80
7	Bali island tuna fishery base maintenance Project	Fishery	FY1977	Aug 74	5.97
8	Bone sugar mill project	Processing	FY1978	Dec 73	11.13
9	Tuna fishery base maintenance for North Sumatra (III)	Fishery	FY1978	Dec 73	10.44
10	Karisurabaya irrigation project (II)	Irrigation	FY1978		12.19
11	Way Umpu/Pungbuan Project Irrigation	Irrigation	FY1978	Dec 74	7.75
12	Way Umpu/pungbuan Project Irrigation (II)	Irrigation	FY1978	Jul 76	15.48
13	Karisurabaya irrigation project (III)	Irrigation	FY1979	Jul 76	26.81
14	Way Rarem/Abung irrigation project (ES)	Irrigation	FY1976	Mar 77	3.22
15	Wonogiri irrigation and river improvement project (ES)	Irrigation	FY1976	Mar 77	5.13
16	The development project for the Jakarta fishing port/market (ES)		FY1977	Nov 77	2.24
17	Wonogiri irrigation project	Irrigation	FY1977	Feb 79	98.00
18	Food aid		FY1977	Nov 77	65.00
19	Jakarta fishing port project	Fishery	FY1978	Mar 79	44.30
20	Way Rarem/Abung irrigation project	Irrigation	FY1978	Mar 79	73.65
21	Wides Irrigation Project	Irrigation	FY1978	Mar 79	18.33
22	Pasal/Ikan fishing port project (Jakarta fishing port and fish market II)	Fishery	FY1979	Jun 80	36.22
23	Way Rarem/Abung irrigation project II)	Irrigation	FY1979	May 80	102.45
24	Riam Kanan irrigation project (E/S)	Irrigation	FY1979	Mar 80	4.50
25	Ural river improvement and irrigation project	Irrigation	FY1980	May 81	81.40
26	Lamkeme irrigation project (E/S)	Irrigation	FY1981	Apr 82	3.20
27	Kurun Ache irrigation project (E/S)	Irrigation	FY1981	Apr 82	3.80
28	The upper Komering river basin development project (E/S)	Irrigation	FY1982	Sep 83	11.80
29	Rice post harvest improvement project	Agriculture	FY1982	Mar 84	58.00
30	Riam Kanan irrigation project	Irrigation	FY1983	Jun 84	86.36
31	The Bila irrigation project (E/S)	Irrigation	FY1983	Jun 84	5.50
32	Rice seed production and distribution project	Agriculture	FY1984	Feb 85	30.00
33	The Jakarta fishing port and a marine product market development project (III Transportation system of refrigerated food ES)	Fishery	FY1984	Mar 85	3.72
34	Lamkeme irrigation project (E/S)	Irrigation	FY1985	Dec 85	69.51
35	Way Umpu/Pungbuan irrigation and rehabilitation project	Irrigation	FY1986	Jan 87	13.92
36	Way Rarem/Abung irrigation project (III)	Irrigation	FY1987	Dec 87	30.27
37	Way Padjera irrigation improvement project	Irrigation	FY1988	Jul 88	10.82
38	Pamarayan/Chunjun irrigation rehabilitation project	Irrigation		Oct 88	56.67
39	Private sector plantation trust plan (ADJF category B)	Agriculture	FY1989	Nov 89	169.55
40	Small scale irrigation management project	Irrigation	FY1989	Dec 89	18.96
41	Irrigation and flood control rehabilitation project	Irrigation	FY1989	Dec 89	215.18
42	Bogor Agriculture institute expansion project	Agriculture	FY1989	Dec 89	69.46
43	Ache irrigation project	Irrigation	FY1990	Dec 90	63.33
44	Bila irrigation project (I)	Irrigation	FY1990	Dec 90	64.60
45	Way Curup irrigation project	Irrigation	FY1991	Sep 91	14.22
46	Way Rarem irrigation project (IV)	Irrigation	FY1991	Sep 91	16.23
47	Bila irrigation project (II)	Irrigation	-	Oct 92	37.88
48	Way Sekampung irrigation project	Irrigation	FY1992	Oct 92	76.53
49	South Sumatra swamp development project	Irrigation	-	Oct 92	55.77
50	The Jakarta fishing port and a fish market maintenance project	Fishery	FY1993	Nov 93	40.09
51	Agriculture development project	Agriculture	FY1993	Nov 93	67.18
52	Batang Hari Irrigation Project	Irrigation	FY1993	Nov 93	6.76
53	Small Scale Irrigation Management Project (II)	Irrigation	FY1994	Nov 94	81.35
54	Way Sekampung irrigation project (II)	Irrigation	FY1994	Nov 94	162.10
55	Bogor Agriculture Institute Expansion Project (II)	Agriculture	FY1994	Nov 94	77.16
56	Komering Irrigation Project (II-I)	Irrigation	FY1995	Dec 95	65.44
57	Agriculture development project II)	Agriculture	FY1995	Dec 95	40.65
58	Bitun fishing port construction project (ES)	Fishery	FY1995	Dec 95	1.94
59	Project Type Sector Loan for Water Resources Development	Irrigation	FY1996	Dec 96	117.97
60	Integrated Horticulture Development in upand areas	Agriculture	FY1996	Dec 96	77.69
61	Batang Hari Irrigation Project	Irrigation	FY1996	Dec 96	60.50
62	Bili-Bili Irrigation Project	Irrigation	FY1996	Dec 96	54.72
63	Batang Kumu Irrigation Project (ES)	Irrigation	FY1996	Dec 96	3.74
64	Way Sekampung Irrigation Project (III)	Irrigation	FY1997	Jan 98	92.16
65	Small scale irrigation management project (III)	Irrigation	FY1997	Jan 98	167.01
66	Gilirang Irrigation Project (E/S)	Irrigation	FY1997	Jan 98	6.17
67	Sector Program Loan (I)		FY1998	Oct 98	500.00
68	Sector Program Loan (II)	Agriculture Fishery	FY1998	Dec 98	1,000.00
69	Batang Hari Irrigation Project (II)	Irrigation	-	Jul 01	76.39
70	Project Type Sector Loan for Water Resources Development (II)	Irrigation	-	Jul 01	186.76
71	Small Scale Irrigation Project (IV)	Irrigation	-	Mar 02	270.00

Figure 4.3.1 Japan's Major Cooperation Projects for the Agriculture and Fisheries Sector in Indonesia 1967 - 2002 (3/3)

Attachments

Attachment - 1

Scope of Work
for
the Support Program for
Agriculture and Fisheries Development in the Republic of Indonesia
Agreed upon
between National Development Planning Agency (BAPPENAS)
and
Japan International Development Agency (JICA)

IN/IR - 557 7/9

Scope of Work

for

the Support Program for

Agriculture and Fisheries Development

in the Republic of Indonesia

agreed upon between

National Development Planning Agency

and

Japan International Cooperation Agency

Jakarta, 8 February , 2002

Muhammad Abduh
Deputy Chair man for Development Financing
and Foreign Cooperation
National Development Planning Agency
(BAPPENAS)

Michio KANDA
Resident Representative
JICA Indonesia Office
Japan International Cooperation Agency

I. INTRODUCTION

In response to the request of the Government of the Republic of Indonesia (hereinafter referred to as "GOI"), the Government of Japan (hereinafter referred to as "GOJ") decided to conduct the Support Program for Agriculture and Fisheries Development in the Republic of Indonesia (hereinafter referred to as "the Support Program") in accordance with the relevant laws and regulations in force in Japan.

Accordingly, the Japan International Cooperation Agency (hereinafter referred to as "JICA"), the official agency responsible for the implementation of the technical cooperation programs of GOJ, will undertake the Support Program in close cooperation with the authorities concerned of Indonesia.

The present document sets forth the scope of work with regard to the Support Program.

II. OBJECTIVES OF THE SUPPORT PROGRAM

1. To formulate an action plan for the following GOJ's cooperation programs in the agriculture and fisheries sector in Indonesia (hereinafter referred to as "the Action Plan"), which were formed based on the priority issues of GOI and the result of the JICA's Sector Assistance Strategy Formulation Study on Agriculture and Fisheries Sector that was conducted in 2001.

The tentative direction of GOJ cooperation for the agriculture and fisheries sectors in Indonesia from 2002 to 2006 is composed from two(2) development issues and five(5) programs as follows:

(1) Stable Food Supply and Improvement of Nutrition

- Program for Improvement of Institution and Production and Production Support System in Agriculture and Fisheries
- Program for Improvement of Function of Agricultural Infrastructure and Sustainable Operation and Maintenance
- Program for Sustainable Development of Fishery Resources

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

- Program for Promotion of Community-based Economic Activities in Agriculture

and Fisheries

- Program for Improvement and Strengthening of Markets for Agricultural and Fishery Products

2. To monitor the implementation of the Action Plan and conduct its evaluation, and

3. To assist GOI in strengthening its institutional capacity in planning and management of the development of agriculture and fisheries sector.

III. SCOPE OF THE SUPPORT PROGRAM

In order to achieve the objectives above, the Support Program shall consist of the following items.

1. Planning Stage of the Support Program (hereinafter referred to as "1st Stage")

To conduct necessary surveys and studies on the agriculture and fisheries sector in order to formulate the Action Plan, taking into account of the result of recently conducted studies in the field of agriculture and fisheries, including the aforementioned JICA's Sector Assistance Strategy Formulation Study on Agriculture and Fisheries Sector in Indonesia in 2001 and other relevant studies.

The contents of surveys/ studies are:

1.1 To review the agriculture and fisheries sector studies previously conducted by the GOI, GOJ and the other development partners,

1.2 To update the collected data by these studies,

1.3 To analyze the development situation of agriculture and fisheries sector in Indonesia,

1.4 To examine the way to make the best use of domestic and external resources to implement the Action Plan in collaboration between GOI and GOJ,

1.5 To draft a sector analysis report relating to the issue of the above-mentioned cooperation programs (hereinafter referred to as "the Sector Analysis Report") based on the results of these activities, and

1.6 To formulate various proposals for Japanese ODA as the Action Plan, based on the Sector Analysis Report.

2. Implementation Stage of the Support Program (hereinafter referred to as "2nd Stage")

2.1 To monitor the implementation of the Action Plan and give advice to the GOI for its smooth implementation

2.2 To conduct necessary coordination with development partners for the smooth implementation of the Action Plan

2.3 To conduct pilot project(s), if the needs arise

2.4 To review and modify the Action Plan, if the needs arise, and

2.5 To evaluate the Action Plan

IV. MANAGEMENT MECHANISM

1. Taking into consideration the objectives of the Support Program shall be implemented jointly by the Indonesian and Japanese sides.

2. The Steering Committee shall be established for the smooth and efficient implementation of the Support Program.

3. National Development Planning Agency (hereinafter referred to as "BAPPENAS") shall act as a coordinating agency in the Indonesian side for holding the Steering Committee, which shall be composed of the members from following organizations:

Indonesian side

- BAPPENAS
- State Secretariat, Bureau of Technical Cooperation
- Ministry of Finance
- Ministry of Agriculture
- Ministry of Marine Affairs and Fisheries
- Ministry of Settlement and Regional Infrastructure
- State Ministry of Cooperatives and Small and Medium Enterprises
- Ministry of Trade and Industry
- Ministry of Home Affairs
- State Ministry of Women Empowerment

Japanese side

- Embassy of Japan
- Representative office of Japan Bank for International Cooperation(JBIC) in Jakarta
- JICA Indonesia office

V. SCHEDULE OF THE SUPPORT PROGRAM

The Support Program should be carried out in accordance with the Tentative Work Schedule attached as Annex.

VI. REPORTS

JICA shall prepare and submit the following reports, written in English, to GOI;

Inception Report	: Fifty (50) copies at the commencement of the Support Program
Sector Analysis Report	: Fifty (50) copies at the end of the 1st Stage
Agriculture and Fisheries Sector Action Plan	: Fifty (50) copies at the commencement of the 2nd stage
Monitoring Report (s)	: Fifty (50) copies at the process of the 2nd stage
Final Report	: Fifty (50) copies at the end of the Support Program

VII. UNDERTAKING OF THE GOI

1. To facilitate the smooth conduct of the Support Program, GOI shall take necessary measures, as listed below;

1.1 Secure the safety of the member of JICA's team of Support Program (hereinafter referred to as "the Member"),

1.2 Permit the Member to enter, leave and sojourn in Indonesia for the duration of their assignment there in, and exempt them from alien registration requirements and consular fees,

1.3 Exempt the Member from taxes, duties and other charges on equipment, machinery and

other materials to be brought into and out of Indonesia for the conduct of the Support Program,

1.4 Exempt the Member from income tax and charges of any kind imposed on or in connection with any emoluments or allowances paid to the Member for their services in connection with the implementation of the Support Program,

1.5 Provide necessary facilities to the Member for remittance as well as utilization of the funds introduced into Indonesia from Japan in connection with the implementation of the Support Program,

1.6 Secure permission for the Member(s) to enter private properties or restricted areas for the conduct of the Support Program,

1.7 Secure permission for the Member to take all data and documents, including photographs and maps, relevant to the Support Program out of Indonesia to Japan, and

1.8 Provide medical services as needed. Its expenses will be chargeable to the Member.

2. GOI shall bear claims, if any arises, against the Member resulting from, occurring in the course of, or otherwise connected with the discharge of their duties in the implementation of the Support Program, except when such claims arise from gross negligence or willful misconduct on the part of the Member.

3. BAPPENAS shall act as the counterpart agency to JICA's team of the Support Program and also as the coordinating body in relations with other governmental and non-governmental organizations for the smooth implementation of the Support Program.

4. BAPPENAS shall, at its own expense and in cooperation with other organizations concerned, provide the Member with the following;

4.1 Available data and information needed for the Support Program,

4.2 Counterpart personnel,

4.3 Suitable office space with necessary equipment in Jakarta, if available, and

4.4 Credentials or identification cards, and,

VIII. UNDERTAKING OF JICA

For the implementation of the Support Program, JICA shall take the following measures;

1. To dispatch, at its own expense, the Support Program Team to Indonesia, and,

2. To pursue technology transfer to the Indonesian counterpart personnel in the course of

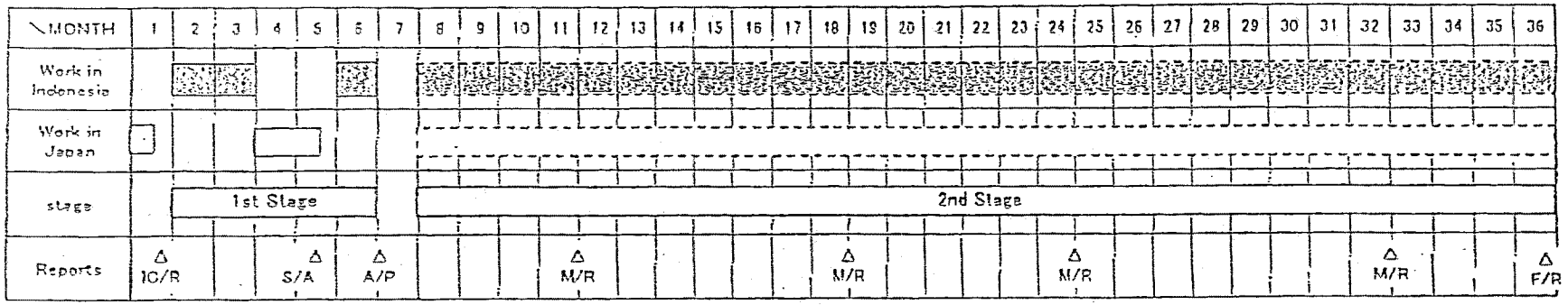
the Support Program.

IX. CONSULTATION

JICA and BAPPENAS shall maintain constant communication and consult with each other in respect of any matters that may arise from or in connection with the Support Program.

ANNEX

TENTATIVE WORK SCHEDULE



(Remarks)

Ic / R	:	Inception Report
S/R	:	Sector Analysis Report
A/P	:	Action Plan
M/R	:	Monitoring Report(s)
F/R	:	Final Report

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Attachment - 2

Minute of Meeting on Inception Report
for
the Support Program for
Agriculture and Fisheries Development in the Republic of Indonesia
Agreed upon
between National Development Planning Agency (BAPPENAS)
and
Japan International Development Agency (JICA)

MINUTES OF MEETINGS ON INCEPTION REPORT
FOR
THE SUPPORT PROGRAM FOR AGRICULTURE AND FISHERIES DEVELOPMENT IN THE REPUBLIC OF INDONESIA

AGREED UPON
BETWEEN
NATIONAL DEVELOPMENT PLANNING AGENCY (BAPPENAS)
AND
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

Jakarta, May, 2002

1. Venue	Meeting Room SS-3 of National Development Planning Agency (BAPPENAS)
2. Date	May 13, 2002
3. Time	10:00 AM ~ noon
4. Attendants	refer attached list

5. Subjects of discussion

The JICA Team submitted 50 copies of the Inception Report to BAPPENAS in accordance with the "Scope of Work (S/W) for the Support Program for Agriculture and Fisheries Development in the Republic of Indonesia" agreed upon between BAPPENAS and JICA on February 8, 2002.

The meeting on the Inception Report was held between BAPPENAS and the JICA Team. Dr. Ir. Ceppie Kurniadi Sumadilaga, MA, Director of Bilateral Foreign Financing, BAPPENAS, chaired the meeting.

At the beginning of discussion, Mr. Suzuki Kazuya, Advisory Team member from JICA, explained background of the Program to all the attendants. Furthermore, Mr. Ishizuka Makoto, Team Leader of the JICA Team, explained contents of the Inception Report briefly. After the presentation of Mr. Ishizuka, various discussions were made between BAPPENAS and JICA Team, and hereby Inception Report was received by BAPPENAS with the following notes:

(1) The JICA Team requested BAPPENAS to organize the Steering Committee in order to secure efficient and effective implementation of the Support Program. BAPPENAS accepted to take the lead role for the establishment of the Committee.

(2) BAPPENAS suggested that the JICA Team assign a long-term expert to stay in Indonesia, so that the JICA Team has enough time to discuss the Action Plan with the related line ministries. BAPPENAS expects that the Action Plan formulated by the JICA Team will reflect the real needs of the Government of Indonesia and could be implemented.

(3) The JICA Team explained BAPPENAS that the work plan mentioned in the Inception Report was subject to change, depending on the future situation. BAPPENAS accepted this explanation.

(4) BAPPENAS asked difference between the Third Umbrella and the Action Plan to be formulated by the JICA Team. The JICA Team replied that the Third Umbrella was completed in 2000 and the Action Plan is expected to define as the next phase for Japan's official development assistance to the agriculture and fisheries sector.

(5) BAPPENAS stated that decentralization in being promoted in Indonesia. It is therefore necessary to consider the progress and status of decentralization, in order to study current situation of Indonesia and formulate the Action Plan for future Japan's official development assistance.

Dr. Ir. Ceppie Kurniadi Sumadilaga, MA
Director of Bilateral Foreign Financing
BAPPENAS
Republic of Indonesia

Mr. Ishizuka Makoto
Leader of JICA Team

Mr. Otake Yuji
Deputy Resident Representative
JICA Indonesia Office

LIST OF ATTANDANTS

National Development Planning Agency (BAPPENAS)

Simon L. Himawan	:	Director of Water Resources and Irrigation
Hasudungan Sihombing	:	Director of Water Resources and Irrigation
Anwar Sunari	:	Staff of Food and Agriculture
Tommy Neemawan	:	Staff of Marine and Fisheries Development
Andi Waonianto	:	Staff
Ceppie Sumadilaga	:	Director of Directorate Bilateral Economic Cooperation
Dewo Putranto	:	Staff, Directorate of Bilateral Economic Cooperation
Eiko Whismulyadi	:	Director of Small and Medium Enterprises and Cooperative Empowerment
Yoshioka Shinji	:	JICA Expert
Okuyama Akira	:	JICA Expert

JICA Advisory Team

Suzuki Kazuya	:	Southeast Asia Division Regional Department I JICA H.Q.

JICA Team

Ishizuka Makoto	:	Team Leader / Macro Economy
Morioka Naoto	:	Co-Team Leader / Rural Development
Ishizaki Yoshiyuki	:	Co-Team Leader / Agricultural Development
Maekawa Akira	:	Co-Team Leader / Fisheries Development
Watanabe Toshio	:	Co-Team Leader / Marketing
Itakura Ippei	:	Coordinator

JICA Indonesia Office

Taki Motoo	:	Assistant Resident Representative

Attachment - 3

Minute of Meeting on Interim Report
for
the Support Program for
Agriculture and Fisheries Development in the Republic of Indonesia
Agreed upon
between National Development Planning Agency (BAPPENAS)
and
Japan International Development Agency (JICA)

MINUTES OF MEETING ON INTERIM REPORT
FOR
THE SUPPORT PROGRAM FOR AGRICULTURE AND FISHERIES DEVELOPMENT
IN THE REPUBLIC OF INDONESIA

AGREED UPON
BETWEEN
NATIONAL DEVELOPMENT PLANNING AGENCY (BAPPENAS)
AND
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

Jakarta, July 19, 2002

The Scope of Work for the Support Program for Agriculture and Fisheries Development in the Republic of Indonesia (hereinafter referred to as "the Support Program") was agreed upon between the National Development Planning Agency (hereinafter referred to as "BAPPENAS") and the Japan International Cooperation Agency (hereinafter referred to as "JICA") on February 8, 2002. In accordance with the Scope of Work, the Government of Japan dispatched through JICA the Study Team (hereinafter referred to as "the JICA Study Team") for execution of the 2nd Field Work in Indonesia during the period from July 14 to August 27, 2002. For the monitoring of the Support Program, JICA also dispatched the Monitoring Team beside the JICA Study Team during the period from July 14 to 19, 2002.

At the commencement of the 2nd Field Work, the JICA Study Team submitted BAPPENAS 50 copies of the Interim Report presenting the results of 1st Field Work in Indonesia and 1st Home Work in Japan. The meeting on the Interim Report was held between the Steering Committee for the Support Program (hereinafter referred to as "the Committee") and the Monitoring Team/JICA Study Team on July 16, 2002. In addition, a series of discussions on the Interim Report was held between the Ministries/Agencies concerned and the Monitoring Team/JICA Study Team individually on July 17 and 18, 2002. The attendants of the meetings are listed in the attachment.

The meeting between the Committee and the Monitoring Team/JICA Study Team was chaired by Dr. Dedi M. Masykur Riyadi, Deputy Chairman for Natural Resources and Environment, BAPPENAS. Mr. Ryuzo Nishimaki, the Team Leader of Monitoring Team, expressed the opening remark of the meeting, followed by Mr. Takeshi Watanabe who was the member of Monitoring Team explained the background of the Support Program to all the attendants. Subsequently, Mr. Makoto Ishizuka, Team Leader of the JICA Study Team, gave the presentation about contents of the Interim Report focussing on the cooperation components which were formulated based on the results of the sector analysis on the agriculture and fisheries sector in Indonesia.

In the individual meeting, the similar presentation was made by the Monitoring Team/JICA

Study Team to the attendants from the Ministries/Agencies concerned.

After a series of discussions with the Committee and Ministries/Agencies concerned, the Interim Report was accepted by the Indonesian side with the mutual confirmation on the following issues:

(1) BAPPENAS emphasized that all the cooperation components presented in the Interim Report should be in line with the National Development Plan (PROPENAS).

(2) BAPPENAS mentioned that the results of sector analysis could be utilized not only for the formulation of the Action Plan for Japan's ODA, but also for the formulation of development program of the Government of Indonesia and other donor agencies.

(3) BAPPENAS mentioned: a) the establishment of the Technical Team, consisting of officials of BAPPENAS and other Ministries/Agencies concerned, for strengthening mutual consultation between the Indonesian and Japanese sides at practical level as well as among the Ministries/Agencies concerned of the Government of Indonesia; b) the possibility of extending the duration of Phase 1, since the Support Program is the strategic effort in formulating a comprehensive Action Plan, which covers Japan's various ODA schemes ; and c) a working arrangement would be set up between the JICA Study Team and the Technical Team of the Indonesian side.

In response to b), the Japanese side explained that the planned schedule of Phase 1 should be maintained in order to reflect the results of the study into cooperation activities starting from year 2003.

(4) The Ministry of Marine Affairs and Fisheries stated that the issue of fish losses should be described in the cooperation components, since it is a crucial issue in the fishery sub-sector. The Japanese side expressed its view that higher priorities are on the approaches from the viewpoints of fisheries resource management and aquaculture.

The Ministry of Marine Affairs and Fisheries also requested the necessary follow-up for the on-going development study under the JICA cooperation. The Japanese side explained that the further discussion would be made based upon the results of the study.

(5) The Ministry of Agriculture proposed that agricultural diversity of regions should be carefully considered in the Support Program.

(6) The Ministry of Home Affairs and Ministry of Settlement and Regional Infrastructure pointed out that the ownership and obligation of local development belong to local governments, and thus local situation should be carefully considered in formulating and executing development activities.

(7) The Monitoring Team stated that large-scale infrastructure development should be carefully considered taking into account its sustainability and present financial conditions of Indonesia.

Dr. Dedi M. Masykur Riyadi
Deputy Chairman for Natural
Resources and Environment,
BAPPENAS

Mr. Ryuzo Nishimaki
Leader of Monitoring Team,
JICA

Mr. Makoto Ishizuka
Leader of JICA Study Team

LIST OF ATTENDANTS

Steering Committee on July 16, 2002

I. BAPPENAS

1.	Dr. Dedi M. Masykur Riyadi	Deputy Chairman for Natural Resources and Environment
2.	Dr. Ceppie K. Sumadilaga	Director, Bilateral Foreign Financing
3.	Lusi	Division Head, Directorate of Bilateral Foreign Financing
4.	Dr. Endah M.	Director, Food and Agriculture
5.	Wahyuningsih D.	Director, Marine and Fisheries
6.	Arif Haryana	Chief, Directorate of Food and Agriculture
7.	Hedi M. Idris	PUKMK Directorate
8.	Hasudungan Sihombing	Directorate of Water Resources and Irrigation
9.	Untung S.	Staff, Bilateral Foreign Financing
10.	Tanimoto H.	JICA Expert
11.	Okuyama A.	JICA Expert

II. SEKNEG

1.	Betty Manurung	Staff at Bureau of Foreign Cooperation
2.	Mulatasih	Staff at Bureau of Foreign Cooperation

III. Ministry of Home Affairs

1.	Nuryanti	Staff
2.	Hidayana	Staff

IV. Ministry of Trade and Industry

1.	Hamzah	Staff, Bureau of Planning Secretariat General

V. Ministry of Marine Affairs and Fisheries

1.	Saut Hutagalung	Director, Bureau of Planning & Foreign Cooperation
2.	Isqak Edi P.	Staff at Bureau of Planning & Foreign Cooperation
3.	Horikoshi N.	JICA Expert

VI. Ministry of Settlement and Regional Infrastructure

1.	Firman M. Hutapea	Chief of P2B Division, Bureau of Foreign Cooperation
2.	Agus Suprapto K.	Staff, Bintek SDA

VII. Ministry of Cooperatives and Small & Medium Enterprices

1.	Ahmad Zabadi	Chief of Planning Division
2.	Ramal S.	Planning Division
3.	Luhut P.	Planning Division

VIII. State Ministry of Women Empowerment

1.	Agustina Erni	Head of Foreign Affair, Planning Bureau

IX. Japan Bank International Cooperation

1.	Fukuyama K.	Representative, Representative Office in Jakarta

X. Monitoring Team

1.	Nishimaki R.	Managing Director, JICA Head Quarter
2.	Suzuki K.	Ministry of Foreign Affairs
3.	Tsukada N.	Ministry of Agriculture, Forestry and Fisheries
4.	Watanabe T.	JICA Head Quarter
5.	Shibusawa T.	JICA Head Quarter

XI. JICA Indonesia Office

1.	Otake Y.	Deputy Resident Representative
2.	Hoshi H.	Assistant Resident Representative
3.	Taki M.	Assistant Resident Representative
4.	Lingga Kartika	Program Officer

XII. JICA Team

1.	Ishizuka M.	Team Leader, Macro-Economy Expert
2.	Watanabe T.	Marketing Expert
3.	Ishizuka Y.	Agriculture Development Expert
4.	Maekawa A.	Fisheries Development Expert
5.	Morioka N.	Rural Development Expert
6.	Itakura I.	Coordinator

LIST OF ATTENDANTS

Meeting with Individual Ministries

I. Ministry of Agriculture on July 16, 2002

1.	Dr. Kaman Nainggolan	Director, Bureau of Planning and Finance
2.	Dr. Gardjita Budi	Bureau of Planning and Finance

II. Ministry of Marine Affair and Fisheries on July 17, 2002

1.	Saut P Hutagalung	Director, Bureau of Planning & Foreign Cooperation
2.	Nilanto Perbowo	Head of Planning, DG of Capture Fisheries

III. State Ministry of Cooperative and SME on July 17, 2002

1.	Wayan Suarja	Head of Planning Bureau and Data
2.	Mardjoko Pratomo	Chief of Evaluation and Reporting

IV. Ministry of Finance on July 17, 2002

1.	Edi Karsanto	Director of Foreign Funds

V. Ministry of Trade and Industry on July 17, 2002

1.	Mardjoko Siswanto	Head of Foreign Aid Division, Bureau of Planning

VI. Ministry of Home Affair on July 17, 2002

1.	Yuswandi A. Tumenggung	Head, Center for Cooperation Administration

VII. State Ministry of Women Empowerment on July 18, 2002

1.	Dr. Sri Harijati Hatmadji	Executive Secretary
2.	Dr. H. Yusuf Supiandi	Deputy for Gender Equality

Attachment - 4

Minute of Meeting on Draft Sector Report
for
the Support Program for
Agriculture and Fisheries Development in the Republic of Indonesia
Agreed upon
between National Development Planning Agency (BAPPENAS)
and
Japan International Development Agency (JICA)

MINUTES OF MEETING ON DRAFT SECTOR REPORT
FOR
THE SUPPORT PROGRAM FOR AGRICULTURE AND FISHERIES DEVELOPMENT
IN THE REPUBLIC OF INDONESIA

AGREED UPON
BETWEEN
NATIONAL DEVELOPMENT PLANNING AGENCY (BAPPENAS)
AND
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

Jakarta, September 9, 2002

The Scope of Work for the Support Program for Agriculture and Fisheries Development in the Republic of Indonesia (hereinafter referred to as "the Support Program") was agreed upon between the National Development Planning Agency (hereinafter referred to as "BAPPENAS") and the Japan International Cooperation Agency (hereinafter referred to as "JICA") on February 8, 2002. In accordance with the Scope of Work, the Government of Japan dispatched through JICA the Study Team (hereinafter referred to as "the JICA Study Team") for execution of the 2nd Field Work in Indonesia during the period from July 14 to September 10, 2002.

At the end of the 2nd Field Work, the JICA Study Team submitted BAPPENAS 50 copies of the Draft Sector Report including the Draft Action Plan and its Monitoring System. The meeting on the Report was held between the Steering Committee for the Support Program (hereinafter referred to as "the Committee") and the JICA Study Team on September 9, 2002 at the meeting room of BAPPENAS. The attendants of the meetings are listed in the attachment.

The meeting was chaired by Dr. Endah Murniningtyas, Director for Food and Agriculture, BAPPENAS. Mr. R. Sakuta, First Secretary, Embassy of Japan, made opening remarks, then, Mr. M. Taki, Assistant Resident Representative on behalf of Mr. Y. Otake, Deputy Resident Representative of JICA Indonesia Office, explained the points taken into consideration in formulating the Action Plan. Subsequently, Mr. M. Ishizuka, Team Leader of the JICA Study Team, presented the Report focusing on the Draft Action Plan and its Monitoring System during implementation.

After a series of discussions, the Draft Sector Report including the Draft Action Plan was accepted in general by the Indonesian side. The major points of the discussion were as follows:

(1) The Draft Action Plan is in principle agreed. However, further review is required for finalization which may include some modifications. Discussion will be continued in each

of Indonesian and Japanese sides during the period of the 2nd Home Work in Japan.

(2) The mechanism of monitoring system should be clarified. For this purpose, the both sides will continue to discuss on this matter, and the result will be incorporated in the final report to be submitted in October 2002.

(3) BAPPENAS stated that they would continue the discussion with the line ministries on the Action Plan and Monitoring System to have common understanding within the Indonesian side, and ensuring the compatibility of the Action Plan with the overall GOI development program should be considered. Formalization of the Technical Team and Steering Committee would also be discussed for monitoring and evaluation of the Support Program.

Dr. Endah Murniningtyas
Director for
Food and Agriculture
BAPPENAS

Mr. Makoto Ishizuka
Leader
JICA Study Team

Mr. Yuji Otake
Deputy Resident Representative
JICA Indonesia Office

LIST OF ATTANDANTS

I.	**BAPPENAS**		
1.	Endah Murniningtya.	:	Director of Food and Agriculture
2.	Arif Haryana	:	Chief of Food Division, Directorate of Food Agriculture
3.	Anwar Sunari	:	Chief of Horticulture Division, Directorate of Food and Agriculture
4.	M. Heri S.	:	Chief, Directorate of Marine and Fisheries
5.	Hasudungan Sihombing	:	Directorate of Water Resources and Irrigation
6.	Hedi M. Idris	:	Directorate of PUKMK
7.	Cholifihani	:	Staff, Directorate of Bilateral Foreign Financing
8.	Untung S.	:	Associate Staff, Directorate of Bilateral Foreign Financing
9.	Hisao TANIMOTO	:	JICA Expert
10.	Akira OKUYAMA	:	JICA Expert
II.	**State Secretariat (SEKNEG)**		
11.	Kiagus Usman	:	Sub-Chief of Bilateral Cooperation
III.	**Ministry of Agriculture (MOA)**		
12.	Susilo	:	Chief, Bureau of Planning, Secretariat General
13.	Tadashi TSUCHIYA	:	JICA Expert
14.	Noriharu USUKI	:	JICA Expert
15.	Masahito SATO	:	JICA Expert
IV.	**Ministry of Marine Affairs and Fisheries (MMAF)**		
16.	Isac N. Tarigan	:	Sub-Chief, Bureau of Planning and Foreign Cooperation
17.	Isqak Edi. P.	:	Sub-Chief, Directorate of International Institution
18.	Nobuyuki HORIKOSHI	:	JICA Expert

V.	**Ministry of Home Affairs**		
19.	S. W. Singarimbun	:	Sub-Chief of Regional Development, BANGDA
VI.	**Ministry of Finance**		
20.	Nuryanto	:	Directorate of Foreign Fund, Directorate General of Budgetting
VII.	**Ministry of Industry and Trade (MOIT)**		
21.	Mardjoko Siswanto	:	Head of Foreign Aid Division, Bureau of Planning
VIII.	**Ministry of Settlement and Regional Infrastructure**		
22.	Lenny M.	:	Bureau of Foreign Cooperation
IX.	**State Ministry of Women Empowerment**		
23.	Heru Kasisi	:	Bureau of Planning
24.	Agustina Erni	:	Bureau of Planning
X.	**Embassy of Japan**		
25.	Ryuiichi SAKUTA	:	First Secretary
XI.	**JICA Indonesia Office**		
26.	Yuji OTAKE	:	Deputy Resident Representative
27.	Motoo TAKI	:	Assistant Resident Representative
28.	Akihisa SANO	:	Assistant Resident Representative
XII.	**JICA Study Team**		
29.	Makoto ISHIZUKA	:	Team Leader, Macro-Economy Expert
30.	Naoto MORIOKA	:	Rural Development Expert

Attachment - 5

Organizational Charts

5-1 National Development Planning Agency（BAPPENAS）

5-2 State Secretariat（SEKNEG）

5-2-1 Bureau of Technical Cooperation, State Secretariat

5-3 Ministry of Finance

5-4 Ministry of Agriculture

5-4-1 Agency for Food Security, Ministry of Agriculture

5-5 Ministry of Marine Affairs and Fisheries

5-6 Ministry of Settlement and Regional Development

5-7 State Ministry of Cooperative and Small & Medium Enterprises

5-8 Ministry of Industry and Trade

5-9 Ministry of Home Affairs

5-10 State Ministry of Women Empowerment

Organizational Structure
National Development Planning Agency (BAPPENAS)
June 2002

Minister / Chairman of Bappenas
Menteri / Kepala Bappenas
Kwik Kian Gie

Inspectorate General
Inspektorat Utama
Ir. Rusnadi Ridwan, MSc

- **Inspector for General Administration Affairs** — *Inspektorat Bidang Administrasi Umum* — Drs. Bagus Rumbogo, Ak
- **Inspector for Institution Performance Affairs** — *Inspektorat Bidang Kinerja Kelembagaan* — Drs. Setiabudi, MA

Secretary of the Minister for National Development Planning / Secretary General of BAPPENAS
Sekretaris Menteri PPN/Sekretaris Utama BAPPENAS
Dr. Ir. Koensatwanto Inpasihardjo

- **Bureau of Public Relations, Conferences, and Administration** — *Biro Humas, Persidangan dan Administrasi Pimpinan* — Drs. Dwi Wahyu Atmaji, MPA
- **Bureau of Personnel and Law** — *Biro Kepegawaian dan Hukum* — Drs. Sutrisno Djaja
- **Bureau of General Affairs** — *Biro Umum* — Drs. Supadi, MSM
- **Bureau of Planning and Managerial Organization** — *Biro Perencanaan dan Organisasi Tatalaksana* — Ir. Haslim Hasbullah
- **Center for Guidance, Training and Education of Planning** — *Pusat Pembinaan, Diklat Perencanaan* — Dr. Ir. Dedy Supriadi Priatna, MSc
- **Center for Data and Planning Information** — *Pusat Data and Informasi Perencanaan* — Ir. Agung Hardjono, MSEM, MSIS

Deputy for Human Resources and Cultural Affairs
Deputi Bidang Sumber Daya Manusia dan Kebudayaan
Dra. Leila Retna Komala, MA

- **Director of Public Health and Nutrition** — *Direktur Kesehatan dan Gizi Masyarakat* — Drs. Arum Atmawikarta, SKM, MPH
- **Director of Religion and Education** — *Direktur Agama dan Pendidikan* — Drs. Nina Sarjunani, MA
- **Director of Population, Community, & Woman Empowerment** — *Direktur Kependudukan, Kemasya-rakatan & Pemberdayaan Perempuan* — Dr. Yuhandarwati, MA
- **Director of Culture and Science & Technology** — *Direktur Kebudayaan dan Iptek* — Dr. Ir. Basuki Yusuf Iskandar, MSc

Deputy for Political, Defence and Security Affairs
Deputi Bidang Politik, Pertahanan dan Keamanan
(Not yet decided)

- **Director of Legal and Human Right** — *Direktur Hukum dan HAM* — Diani Sadiawati, SH, LLM
- **Director of Defence and Security** — *Direktur Pertahanan dan Keamanan* — Ir. Rizky Ferianto, MA
- **Director of Politic, Communication and Information** — *Direktur Politik, Komunikasi dan Informasi* — Drs. Freddy Herman Tulung, MUA
- **Director of State Apparatus** — *Direktur Aparatur Negara* — Dr. Ir. Bima Haria Wibisana, MSc

Deputy for Regional Autonomy and Regional Development Affairs
Deputi Bidang Otonomi Daerah dan Pengembangan Regional
Dr. Ir. Bambang Bintoro S

- **Director of Regional Autonomy Development** — *Direktur Pengembangan Otonomi Daerah* — Ir. Max H. Pohan, CES, MA
- **Director of Spatial Planning and Land Affairs** — *Direktur Tata Ruang dan Pertanahan* — Dr. Ir. Sudjana Royat
- **Director of Development Cooperation for Sectoral and Region** — *Direktur Kerjasama Pembangunan Sektoral dan Daerah* — Ir. Tatang Wiranto, MURP
- **Director of Regional Development and Transmigration** — *Direktur Pengembangan Wilayah dan Transmigrasi* — Dr. Ir. Imron Bulkin
- **Director of Undeveloped and Special Development** — *Direktur Pengembangan Kawasan Tertinggal dan Khusus* — Dr. Ir. Herry Darwanto, MSc
- **Director of Urban and Rural Affairs** — *Direktur Perkotaan dan Perdesaan* — Dr. Ir. Peni L. Kusumastuti, MSc

Deputy for Macro Economic Affairs
Deputi Bidang Ekonomi Makro
Dr. Soekarno W.

- **Director of Macro Planning** — *Direktur Perencanaan Makro* — Ir. Bambang Prijambodo, MA
- **Director of State Finance and Monetary Analysis** — *Direktur Keuangan Negara dan Analisa Moneter* — Ir. Wismana Adi Suryabrata, MIA
- **Director of Pyament Balance and International Economic Cooperation** — *Direktur Neraca Pembayaran dan Kerjasama Ekonomi International* — Dr. Ir. Lukita Dinarsyah Tuwo, MA
- **Director of Manpower and Economic Analysis** — *Direktur Ketenagakerjaan dan Analisa Ekonomi* — Dr. Ir. Bambang Widianto, MA
- **Director of Industry, Trade, and Tourism** — *Direktur Industri, Perdagangan dan Pariwisata* — Dr. Ir. Luky Eko Wuryanto, MSc
- **Director of Small and Medium Enterprises (SME) and Cooperatives Empowerment** — *Direktur Pemberdayaan UKM dan Koperasi* — Ir. Eiko Whismulyadi, MA

Deputy for Natural Resources and Environment Affairs
Deputi Bidang Sumber Daya Alam dan Lingkungan Hidup
Dr. Ir. Deddy M. Masykur Riyadi

- **Director of Food and Agriculture** — *Direktur Pangan dan Pertanian* — Dr. Ir. Rr. Endah Murniningtyas MSc
- **Director of Forestry and Water Resources Conservation** — *Direktur Kehutanan dan Konservasi Sumber Daya Air* — Dr. Ir. Edi Efendi Tedjakusuma, MA
- **Director of Maritime and Fisheries** — *Direktur Kelautan dan Perikanan* — Ir. Wahyningsih Darajati, MSc
- **Director of Mineral Resources and Mines** — *Direktur Sumber Daya Mineral dan Pertambangan* — Ir. Bemby Uripto, MSc
- **Director of Natural Resources Control and Environment** — *Direktur Pengendalian Sumber Daya Alam dan Lingkungan Hidup* — Dr. Ir. Agus Prabowo

Deputy for Facilities and Infrastructure Affairs
Deputi Bidang Sarana dan Prasarana
Dr. Ir. Suyono Dikun

- **Director of Water Resources and Irrigation** — *Direktur Pengairan dan Irigasi* — Ir. Simon Laksmono Himawan, MA
- **Director of Transportation** — *Direktur Transportasi* — Ir. Ferrerius Sugiono, MSc
- **Director of Settlement and Housing** — *Direktur Pemukiman dan Perumahan* — Ir. Basah Hernowo, MA
- **Director of Energy, Telecomunication and Informatica** — *Direktur Energy, Telekomunikasi dan Informatika* — Ir. Gumilang Hardjakusuma, MSc
- **Director of Institution and Public Infrastructure Development** — *Direktur Pengembangan Kelembagaan dan Prasarana Publik* — Drs. Daroedono, MA

Deputy for Development Financing Affairs
Deputi Bidang Pendanaan Pembangunan
Dr. Ir. Koensatwanto Impasihardjo (Task Implementing Officer)

- **Directorate of Financing Analysis and Formulation** — *Direktorat Analisis dan Formulasi Pendanaan* — Dr. Slamet Seno Adji, MA
- **Directorate of Bilateral Foreign Financing** — *Direktorat Pendanaan Luar Negeri Bilateral* — Dr. Ir. Ceppie Kurniadi Sumadilaga, MA
- **Directorate of Multilateral Foreign Financing** — *Direktorat Pendanaan Luar Negeri Multilateral* — *Ir. Syahrial Loetan, MCP*
- **Directorate of System and Procedure for Development Financing** — *Direktorat Sistem dan Prosedur Pendanaan Pembangunan* — Ir. Agus Rahardjo, MSM
- **Directorate of Monitoring and Evaluation of Financing** — *Direktorat Pemantauan dan Evaluasi Pendanaan* — Ir. Benedictus Benny Setiawan, MSc
- **Directorate of Development Administration** — *Direktorat Administrasi Pelaksanaan Pembangunan* — Drs. Anwar Sodiq Santoso, MSi

Organization Chart of State Secretariat
Struktur Organisasi Sekretariat Negara (SEKNEG)

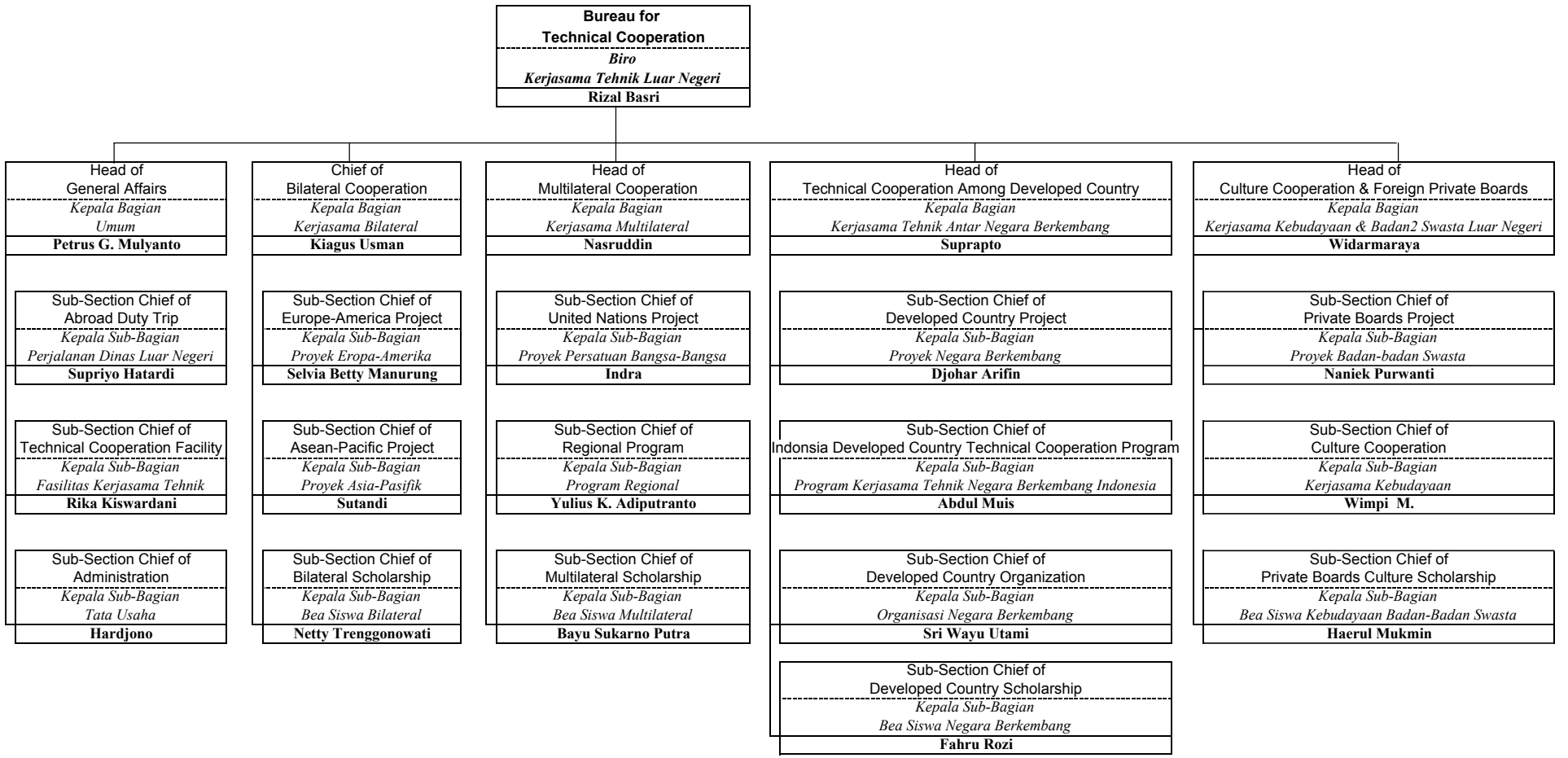
June 2002

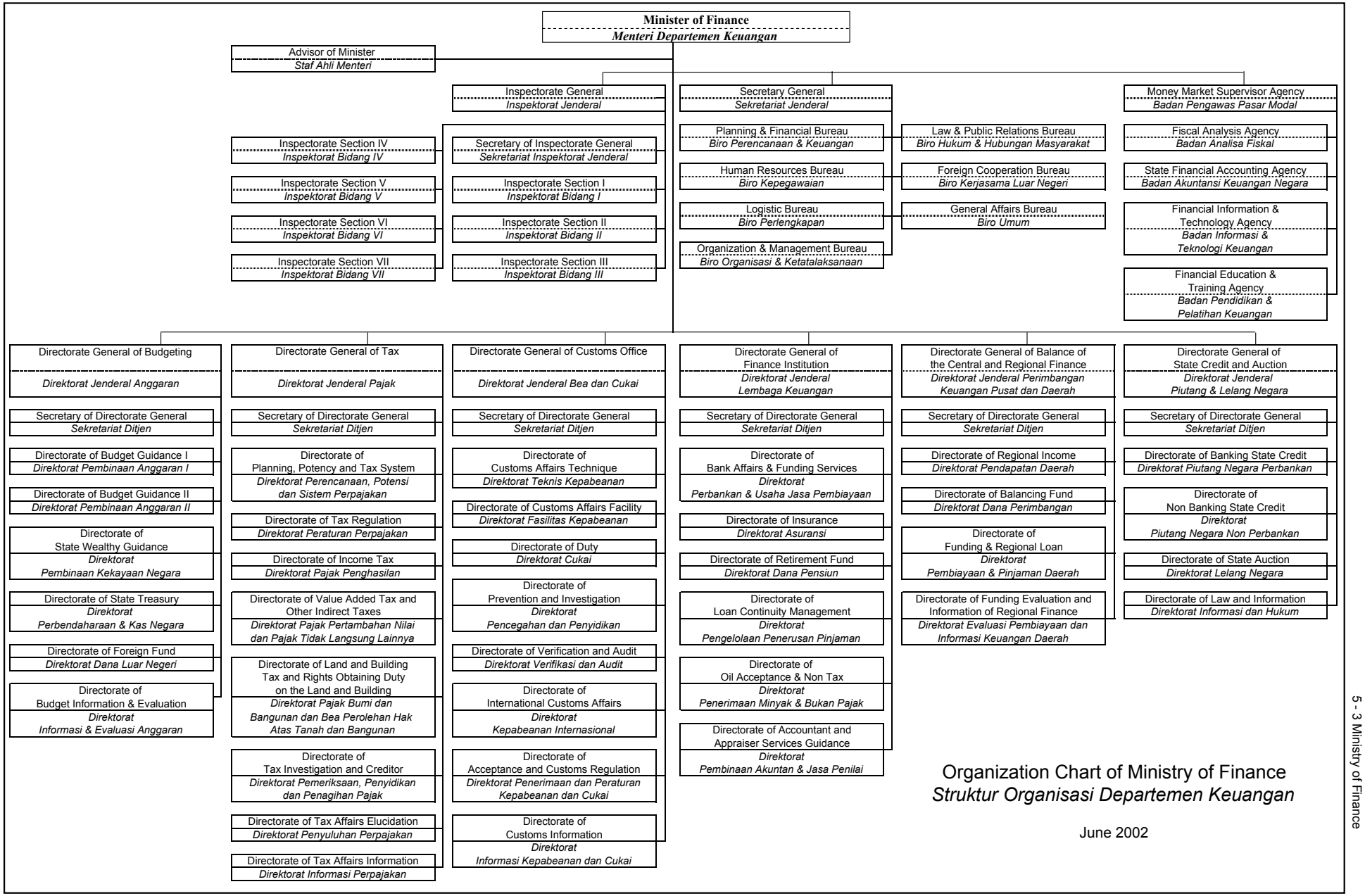
State Secretariat
Sekretariat Negara
Bambang Kesowo

Advisor of State Secretariat : - Soedibyo Darnosutanto
Staf Ahli Sekretariat Negara - Parmono Sudibyo

3845627 ext. 1101	***3845627 ext. 5202***	***3850107***	***3520874***
Deputy of Policy Supporting *Deputi Bidang Dukungan Kebijakan* **Sumarwoto**	Deputy of Administration *Deputi Bidang Administrasi* **Rildo Ananda Anwar**	Deputy of Resources Empowerment *Deputi Bidang Sumberdaya Pemberdayaan* **R.H.J. Suharto**	Deputy of Institution & Community Relation *Deputi Bidang Hubungan Kelembagaan Kemasyarakatan* **Husein Adiwisastra**
Bureau for Law *Biro Hukum* **(not yet decided)**	Bureau for General Affairs *Biro Umum* **Taufik Sukasah**	Bureau for Assets Empowerment *Biro Pemberdayaan Aset* **Zurfian Lubis**	Bureau for Highest (MPR) & State High (DPR) Institutional Relation *Biro Hubungan Lembaga Tertinggi & Tinggi Negara* **Lagiman**
Bureau for National Review *Biro Kajian Dalam Negeri* **Djadju Natsir**	***3860611*** Bureau for Technical Cooperation *Biro Kerjasama Tehnik Luar Negeri* **Rizal Basri**	Bureau for Planning and Evaluation *Biro Perencanaan dan Evaluasi* **Sukma Irawan**	Bureau for Community Organization Relation *Biro Hubungan Organisasi Kemasyarakatan* **Suratnyana G. Puri**
Bureau for International Review *Biro Kajian Internasional* **Imron Kotan**	Bureau for Budgeting-I *Biro Anggaran-I* **Um Um Rumnasih**	Bureau for Organization and Personnel *Biro Organisasi dan Kepegawaian* **Bambang Prajitno**	Bureau for Regional Legislative Relation *Biro Hubungan Legislatif Daerah* **Sulistyo**
Bureau for Informatica Supporting *Biro Dukungan Informatika* **Rinaldi Sofyan**	Bureau for Budgeting-II *Biro Anggaran-II* **Patar Simatupang**		Bureau for Politic Organization Relation *Biro Hubungan Organisasi Politik* **(not yet decided)**
Bureau for Text and Translation *Biro Naskah dan Terjemahan* **(not yet decided)**	Bureau for Administration *Biro Tata Usaha* **Sugiri**		Bureau for Non-Government-Organization (NGO) Relation *Biro Hubungan Lembaga Swadaya Masyarakat (LSM)* **Sugiri**

Organization Chart of Bureau for Technical Cooperation , State Secretariat
Struktur Organisasi Biro Kerjasama Tehnik Luar Negeri, SEKNEG





Organization Chart of Ministry of Finance
Struktur Organisasi Departemen Keuangan

June 2002

Organization Chart of Ministry of Agriculture
Struktur Organisasi Departemen Pertanian

April 2003

Minister of Agriculture and Plantation
Menteri Pertanian dan Perkebunan
Prof. Dr. Bungaran Saragih

Tel. No.: 7805306

1 Senior Advisor of Minister for Agricultural Technology Affairs
Staff Ahli Menteri Bidang Tehnologi Pertanian
(Dr. Ir. Achmad Syarifuddin Karama)

2 Senior Advisor of Minister for Agricultural Manpower Affairs
Staff Ahli Menteri Bidang Ketenagakerjaan Pertanian
(Dr. Ir. Ade Djuhara, MSc)

3 Senior Advisor of Minister for Agricultural Environment and Areas Development
Staff Ahli Menteri Bidang Lingkungan dan Pembangunan Wilayah Pertanian
(Dr. Ir. Mohammad Jafar)

7804427~28
Secretariat General
Sekretariat Jenderal
Dr.Ir. Memed Gunawan

- Bureau of Planning & Finance — *Biro Perencanaan & Keuangan* — **Dr. Ir. Kaman Nainggolan**
- Bureau of Foreign Cooperation — *Biro Kerjasama Luar Negeri* — **Ir. P. Natigor Siagian**
- Bureau of Organization & Administration — *Biro Organisasi & Tata Usaha* — **Ir. Suprat**
- Center for Data and Information — *Pusat Data dan Informasi Pertanian* — **Dr. Eddy Abdurachman**
- Bureau of Law & Public Relations — *Biro Hukum & Hubungan Masyarakat* — **Drh. Darman Bachri Hasibuan**
- Center for Personnel & Logistic — *Pusat Kepegawaian & Perlengkapan* — **Ir. Subagyono Darmowiyono**
- Center for Standardization and Accreditation — *Pusat Standardisasi dan Akreditasi* — **Ir. Syukur Iwantoro, MS, MBA**
- Center of Plant Varities Protection — *Pusat Perlindungan Varitas Tanaman* — **Ir. Sugiyono Mulyo Prawiro**

7804836 & 7800220
Inspectorate General
Inspektorat Jenderal
Ir. A. Hidayat Rahadian

- Secretariat of Inspectorate General — *Sekretariat Inspektorat Jenderal* — **Drs. M. Jadjid, BSc**
- Inspectorate - I — *Inspektorat - I* — **Ir. Naek Halomoan Nababan**
- Inspectorate - II — *Inspektorat - II* — **Ir. Logam Purba, MM**
- Inspectorate - III — *Inspektorat - III* — **Ir. Rame Sukarsono, MM**
- Inspectorate - IV — *Inspektorat - IV* — **(not yet decided)**

7816081
Directorate General of Agricultural Facilities Development
Direktorat Jenderal Bina Sarana Pertanian
Dr. Ir. Ato Suprapto, MSc

- Secretariat — Directorate General — *Sekretariat Direktorat Jenderal* — **Ir. Nasrun P. Hasibuan**
- Directorate of Business Facility — *Direktorat Sarana Usaha* — **Ir. Sofyan Sukirman**
- Directorate of Water Management — *Direktorat Pemanfaatan Air Irigasi* — **Ir. Hilman Manan, Dipl.HE**
- Directorate of Agricultural Machineries Equipment — *Direktorat Alat Mesin Pertanian* — **Dr. Bambang Prastowo**
- Directorate of Financing — *Direktorat Pembiayaan* — **Dr. Ir. Endang Setyowati**
- Directorate of Fertilizers & Pesticides — *Direktorat Pupuk dan Pestisida* — **Ir. Rozali Musa (Acting)**

7806810/7805269
Directorate General of Food Crops Production Development
Direktorat Jenderal Bina Produksi Tanaman Pangan
Dr. Ir. M. Jafar Hafsah

- Secretariat — Directorate General — *Sekretariat Direktorat Jenderal* — **Dr. Ir. Tahlim Sudaryanto**
- Directorate of Seedling — *Direktorat Perbenihan* — **Ir. Tarkim Suyitno**

7806262/7806274
- Directorate of Cereal — *Direktorat Serealia* — **Ir. Syarifuddin Musa, MSc**
- Directorate of Bean (Legumes) & Roots — *Direktorat Kacang-kacangan dan Umbi-umbian* — **Ir. RMH Manurung**
- Directorate of Area Expansion — *Direktorat Perluasan Areal* — **Ir. Aminuddin Daulay**
- Directorate of Plant Protection — *Direktorat Perlindungan Tanaman* — **Ir. Sutarto Alimuso, MM**

7806881
Directorate General of Horticultural Production Development
Direktorat Jenderal Bina Produksi Hortikultura
Dr. Soemarno, MSc

- Secretariat — Directorate General — *Sekretariat Direktorat Jenderal* — **Dr.Ir. T.E.M. Napitupulu**
- Directorate of Seedling — *Direktorat Perbenihan* — **Ir. Soeroto**
- Directorate of Fruits Plant — *Direktorat Tanaman Buah* — **Dr. Ir. M. Winarno, MSc**
- Directorate of Vegetable, Ornament Plant and Variety Plant — *Direktorat Tanaman Sayuran, Hias dan Aneka Tanaman* — **Ir. Sutrisno Soemodihardjo**
- Directorate of Horticultural Protection — *Direktorat Perlindungan Hortikultura* — **Ir. Daryanto, MM, MBA**
- Directorate of Horticultural Farm Development — *Direktorat Pengembangan Usaha Hortikultura* — **Ir. Muchtarom Wirjo Sentono**

78832048
Directorate General of Plantation Production Development
Direktorat Jenderal Bina Produksi Perkebunan
Dr. Ir. Agus Pakpahan

- Secretariat — Directorate General — *Sekretariat Direktorat Jenderal* — **Ir. Subiyono (Acting)**
- Directorate of Seedling — *Direktorat Perbenihan* — **Ir. Syamsirun Maradja**
- Directorate of Seasonal Crops — *Direktorat Tanaman Semusim* — **Ir. Egi Djanuiswati, MSc**
- Directorate of Annual Crops — *Direktorat Tanaman Tahunan* — **Ir. Nogoseno**
- Directorate of Estate Crops Development — *Direktorat Pengembangan Perkebunan* — **Dr. Ir. Salam Taher, MSc**
- Directorate of Estate Crops Protection — *Direktorat Perlindungan Perkebunan* — **Hasurungan Simanjuntak, Msi**

7815980
Directorate General of Livestock Production Development
Direktorat Jenderal Produksi Bina Produksi Pertenakan
Dr. Drh. Sofyan Sudradjat, MS

- Secretariat — Directorate General — *Sekretariat Direktorat Jenderal* — **Ir. Zainuddin Gairach**
- Directorate of Breedings — *Direktorat Perbibitan* — **Ir. Djaudin Said Simanjuntak**
- Directorate of Livestock Culture — *Direktorat Budidaya Peternakan* — **Ir. Supodo Budiman**
- Directorate of Livestock Development — *Direktorat Pengembangan Peternakan* — **Ir. Don Purjono Utojo**
- Directorate of Animal Health — *Direktorat Kesehatan Hewan* — **Dr. Budi Tri Akoso**
- Directorate of Veterinary Public Health — *Direktorat Kesehatan Masyarakat Veteriner* — **Drh. Bachtiar Murad**

7816183
Directorate General of Agricultural Product Processing and Marketing Development
Direktorat Jenderal Bina Pengolahan Hasil dan Pemasaran Hasil Pertanian
Dr. Ir. Iskandar Andi Nuhung, MS

- Secretariat — Directorate General — *Sekretariat Direktorat Jenderal* — **Dr. Ir. Togar A. Napitupulu, MSc**
- Directorate of Food Crops Product Processing & Marketing — *Direktorat Pengolahan dan Pemasaran Hasil T. Pangan* — **Dr. Ir. Moehaimin Sovan**
- Directorate of Horticultural Product Processing & Marketing — *Direktorat Pengolahan & Pamasaran Hasil Hortikultura* — **Ir. Achmad Manggabarani, MM**
- Directorate of Estate Crop Products Processing & Marketing — *Direktorat Pengolahan & Pamasaran Hasil Perkebunan* — **Ir. Ibrahim Djunaedi**
- Directorate of Livestock Product Processing & Marketing — *Direktorat Pengolahan & Pamasaran Hasil Pertenakan* — **Ir. Rismansyah Danasaputra (Acting)**
- Directorate of Business Development — *Direktorat Pengembangan Usaha* — **Suharyo Husein, BSc, SE**

7806202
Agency for Agricultural Research & Development
Badan Penelitian & Pengembangan Pertanian
Dr. Ir. Djoko Budianto

- Secretariat — Agency — *Sekretariat Badan* — **Dr. Ir. Djoko Said D, MSc**
- Center for Food Crops Research and Development — *Pusat Penelitian dan Pengembangan Tanaman Pangan* — **Dr. Ir. Andi Hasanuddin**
- Center for Horticultural Research and Development — *Pusat Penelitian & Pengembangan Hortikultura* — **Dr. Ir. Achmad Dimyati, MS**
- Center for Estate Crops Research and Dev. — *Pusat Penelitian & Pengembangan Tanaman Perkebunan* — **Ir. Hasnam, MSc, PhD**
- Center for Soil & Agro Climate Research — *Pusat Penelitian Tanah & Agroklimat* — **Dr. Ir. Abdurachman Adimihardja**
- Center for Livestock Research and Development — *Pusat Penelitian dan Pengembangan Peternakan* — **Dr. Ir. Kusuma Dwiyanto, MS**
- Center for Agricultural Socio-Economics Research — *Pusat Penelitian Sosial Ekonomi Pertanian* — **Dr. Pancar Simatupang**

7805037
Agency for Agricultural Human Resources Development
Badan Pengembangan Sumber Daya Manusia Pertanian
Dr. Ir. Sinis Munandar, MS

- Secretariat — Agency — *Sekretariat Badan* — **Dr. Ir. Andin H. Taryoto**
- Center for Agricultural HRD Study — *Pusat Pengkajian Sumber Daya Manusia Pertanian* — **Ir. Pasti Tampubolon, MSc**
- Center for Agricultural Extension Development — *Pusat Pengembangan Penyuluhan Pertanian* — **Ir. M. Anas Rasyid, MEd**
- Center for Agricultural Education Development — *Pusat Pengembangan Pendidikan Pertanian* — **Drs. Safuan Tingal, Med**
- Center for Agricultural Officials Training Dev. — *Pusat Pengembangan Pelatihan Pegawai Pertanian* — **Dr. Ir. A. Sudradjat M, Med**

7804418
Agency for Food Security
Badan Bimbingan Masyarakat Ketahanan Pangan
Dr. Ir. Achmad Suryana, MS

- Secretariat — Agency — *Sekretariat Badan* — **Dr. Ir. Tjuk Eko Hari Basuki, MSc**
- Center for Food Supply Development — *Pusat Pengembangan Ketersediaan Pangan* — **Ir. Ning Pribadi, MSc**
- Center for Food Distribution Development — *Pusat Pengembangan Distribusi Pangan* — **Dr. Ir. Hermanto, MS**
- Center for Food Consumption Development — *Pusat Pengembangan Konsumsi Pangan* — **Ir. Ngentem M. Sinulingga**
- Center for Cummunity Food Security Empowerment — Pusat *Pemberdayaan Ketahanan Pangan Masyarakat* — **Ir. Djodi Tjahyadi K, MM**
- Center for Food Surveillance — *Pusat Kewaspadaan Pangan* — **Dr. Ir. H. Shobar Wiganda, MSc**

Organization Chart
of
Agency for Food Security
Ministry of Agriculture

7805306

Agency for Food Security
Badan Bimas Ketahanan Pangan
DR. Ir. Achmad Suryana

7804476

Secretariat Agency
Sekretariat Badan
DR. Ir. Tjuk Eko Hari Basuki

- **Division of Planning** — *Bagian Perencanaan* — **Ir. Agus Widodo**
  - **Sub Division of Program & Budgeting** — *Sub Bagian Program dan Anggaran* — **Drs. Nasfirman Yul NZ, MM**
  - **Sub Division of Cooperation** — *Sub Bagian Kerjasama* — **Ir. Bambang Purwo, MSc**
  - **Sub Division of Documentation & Data** — *Sub Bagian Data dan Pelaporan* — **Drs. Slamet**
- **Division of Law & Public Relations** — *Bagian Hukum, Ortala dan Humas* — **Drs. Subijantoro**
  - **Sub Division of Law** — *Sub Bagian Hukum* — **Edi Suheryadi, SH**
  - **Sub Division of Organization & Management** — *Sub Bagian Ortala dan Tata Usaha* — **Zainal Arifin, BSc**
  - **Sub Division of Public Relation** — *Sub Bagian Humas* — **Ir. Iping Zainal Arifin**
- **Division of Evaluation** — *Bagian Evaluasi* — **Ir. Aminthon Ginting**
  - **Sub Division of Program Evaluation** — *Sub Bagian Evaluasi Program* — **MW Hudoyo, APi**
  - **Sub Division of Evaluation on Audit Report** — *Sub Bagian Evaluasi Hasil Pengawasan* — **Ir. Idawati Mursidah**
- **Division of General Affairs** — *Bagian Umum* — **Indra Mukti Harahap, SE**
  - **Sub Division of Personnel** — *Sub Bagian Kepegawaian* — **Dra. Wibihati**
  - **Sub Division of Finance** — *Sub Bagian Keuangan* — **Ir. Margo Uripno**
  - **Sub Division of Assets** — *Sub Bagian Rumah Tangga & Perlengkapan* — **Drs. T. Suranto**

7804367

Center for Food Supply Development
Pusat Pengembangan Ketersediaan Pangan
Ir. Ning Pribadi

- **Division of Food Production Monitoring** — *Bidang Pemantauan Produksi Pangan* — **Ir. Rustandi, MS**
  - **Sub Division of Food from Plant** — *Sub Bidang Pangan Nabati* — **Desaliman, MM**
  - **Sub Division of Food from Animal** — *Sub Bidang Pangan Hewani* — **Ir. Chairunnis Buchary**
- **Division of Food Stock** — *Bidang Cadangan Pangan* — **Ir. Ratna Kusuma Dewi**
  - **Sub Division of Government Food Stock** — *Sub Bidang Cadangan Pangan Pemerintah* — **Ir. Sudirman Maman**
  - **Sub Division of Community Food Stock** — *Sub Bidang Cadangan Pangan Masyarakat* — **Ir. Yulifa**

7804496

Center for Food Distribution Development
Pusat Pengembangan Distribusi Pangan
Ir. Hermanto

- **Division of Distribution System** — *Bidang Sistem Distribusi* — **Ir. Marsetya Mardjono, MS**
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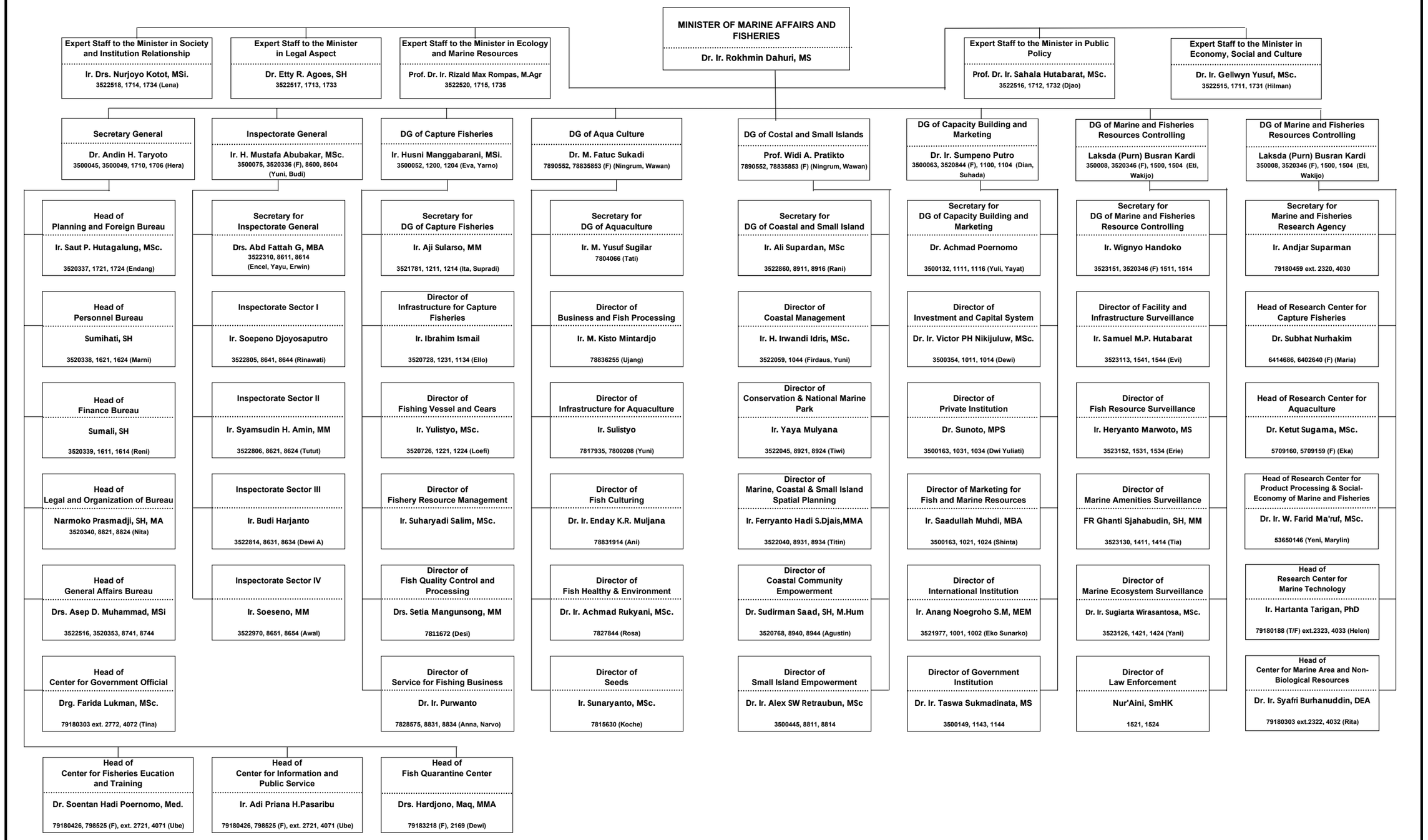
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June 2002

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Secretary of Agency
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Pusat Penilaian Pengadaan
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Construction Quality Evaluation Center
Pusat Penilaian Mutu Konstruksi
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Construction Development Center
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Research and Development for
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Puslitbang Prasarana Transportasi
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Puslitbang Permukiman
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Socio-Culture-Economy
Pusat Pengkajian
Sosial-Budaya-Ekonomi Wilayah
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Badan Pengembangan Sumber Daya Manusia
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Secretary of Agency
Sekretaris Badan
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Pusat Pendidikan dan Pelatihan Pegawai
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Pusat Pendidikan Keahlian Teknik
Ir. Andria Suharndjaja, Dipl. SE. MA

Construction Services Training Center
Pusat Pelatihan Jasa Konstruksi
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Inspector - II
Inspektur - II
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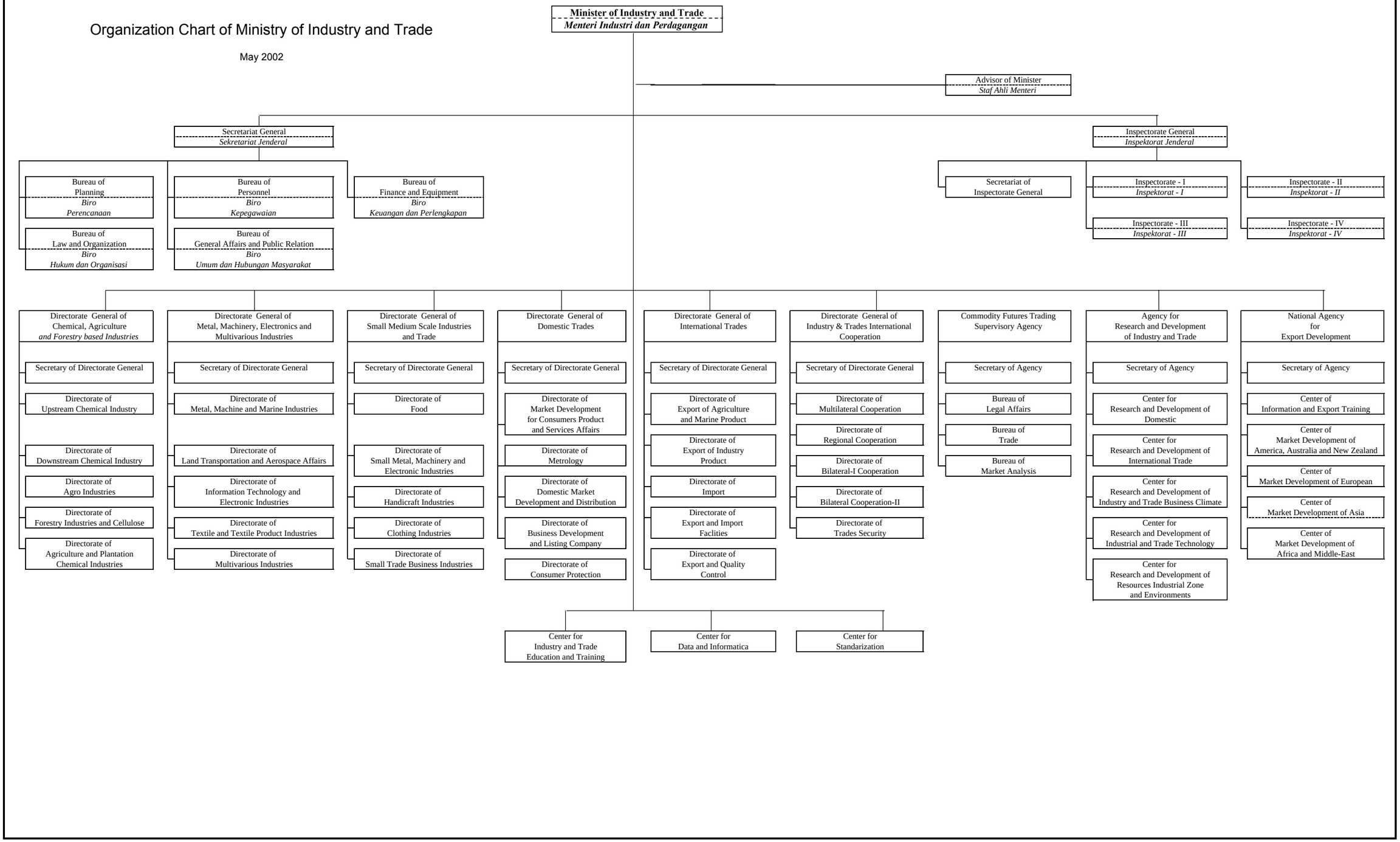
Assistant Deputy for Cooperatives Management and Small & Medium Enterprises Affairs *Asisten Deputi Urusan Tata Laksana Koperasi & Usana Kecil Menengah* **Dr. Ir. Choirul Djamhari, MSc**	Assistant Deputy for Fishery-Livestock Affairs Asisten Deputi Urusan Perikanan-Peternakan **Ir. Maman A. Rachman**	Assistant Deputy for Capitalization Affairs *Asisten Deputi Urusan Permodalan* **Ir. Mudjiono, MM**	Assistant Deputy for Facility & Infrastructure Marketing Affairs *Asisten Deputi Urusan Sarana & Prasarana Pemasaran* **Ir. Hasan Jauhari, MA**	Assistant Deputy for Society Participation Affairs *Asisten Deputi Urusan Peran Serta Masyarakat* **Ir. Marsudi Rahardjo**	Assistant Deputy for Business Dev. Institutional Empowerment Affaris *Asisten Deputi Urusan Pemberdayaan Lembaga Pengembangan Bisnis* **A. Fauzi Kosim, SH**	Assistant Deputy for Small & Medium Business Resources Research *Asisten Deputi Penelitian Sumber Daya Usaha Kecil & Menengah* **Ir. I. Wayan Dipta, MSc**
Assistant Deputy for Cooperatives Membership Affairs *Asisten Deputi Urusan Keanggotaan Koperasi* **Ir. Agus Muharam, MSP**	Assistant Deputy for Industry, Handycraft & Mines Affairs Asisten Deputi Urusan Industri, Kerajinan & Pertambangan **Ir. Pariaman Sinaga**	Assistant Deputy for Insurance & Financial Services *Asisten Deputi Urusan Asuransi & Jasa Keuangan* **Drs. Sunarya Kosasih, MSI, AK**	Assistant Deputy for Association & Network Business Affairs *Asisten Deputi Urusan Kemitraan & Jaringan Usaha* **Drs. Sunardi, MM**	Assistant Deputy for Education & Training Evaluation Affairs *Asisten Deputi Urusan Evaluasi Pendidikan & Pelatihan* **Drs. Soenardi, MM**	Assistant Deputy for Samll & Medium Business Facilitation Affairs *Asisten Deputi Urusan Fasilitasi Usaha Kecil & Menengah* **Ir. Saleh Sofyan**	Assistant Deputy for Small & Medium Business Caderization Development Research *Asisten Deputi Penelitian Pengemb. Pengkaderan Usaha Kecil & Menengah* **Bagus Suherman, SH**
Assistant Deputy for Control & Accountability Affairs *Asisten Deputi Urusan Pengendalian & Akuntabilitas* **Drs. Moh. Hidavat. AK**	Assistant Deputy for Electricity & Business Variety Affairs Asisten Deputi Urusan Ketenagalistrikan & Aneka Usaha **Ir. Syahputra**	Assistant Deputy for Expenditure & Credit Guarantor Affairs *Asisten Deputi Urusan Pembiayaan & Penjamin Kredit* **Drs. Setvo Herivanto. MM**	Assistant Deputy for Information & Publication Business Affairs *Asisten Deputi Urusan Informasi & Publikasi Bisnis* **Ir. Halomoan Tamba**	Assistant Deputy for Lawyer Affairs *Asisten Deputi Urusan Advokasi* **Drs. Tamin Saifuddin**	Assistant Deputy for Business System Development Affairs *Asisten Deputi Urusan Pengembangan Sistim Bisnis* **Drs. Nedy Rafinaldi**	Assistant Deputy for Development Supervision Research *Asisten Deputi Penelitian Pengawasan Pembangunan* **Drs. A. Karim**

Organization Chart of Ministry of Industry and Trade

May 2002



Organization Chart of Ministry of Home Affairs
Struktur Organisasi Departemen Dalam Negeri

June 2002

Minister of Home Affairs & Regional Autonomy
Menteri Dalam Negeri & Otonomi Daerah
Hari Sabarno

Advisor to the Minister
Staf Ahli Menteri

3450038

Secretary General
Sekretaris Jenderal
Siti Nurbaya

- Planning Bureau — *Biro Perencanaan* — **Timbul Pujianto**
- Personnel Bureau — *Biro Kepegawaian* — **Abdul Fatah**
- Organization & Protocol Public Relation Bureau — *Biro Organisasi & Protokol Humas* — **I. Nyoman Sumariyadi**
- General Affairs Bureau — *Biro Umum* — **Nata Irawan**
- Law & Regional Policy Study Center — *Pusat Kajian Hukum & Kebijakan Daera* — **Manggala Sihite**
- Data Processing & Information System Center — *Pusat Pengolahan Data & Sistem Informasi* — **Moedjiono**

3842602

Inspectorate General
Inspektorat Jenderal
Sarundajang

- Secretary — *Sekretaris* — **Bambang Dwiyanto**
- Inspector of Region-II — *Inspektur Wilayah-II* — **Sudjono**
- Inspector of Region-I — *Inspektur Wilayah-I* — **Nagaravati Siregar**
- Inspector of Region-IV — *Inspektur Wilayah-IV* — **Zaenal Pardede**
- Inspector of Region-III — *Inspektur Wilayah-III* — **Perwira**

Research & Development Agency
Badan Litbang
Tursandi Alwi

- Secretary — *Sekretaris* — **Subagio**
- Research & Development Center for Gvt Administrative — *Pusat Litbang Pemerintahan* — **Sungadi Suryorahardjo**
- Research & Development Center for Regional Capacity — *Pusat Litbang Kapasitas* — **Agung Mulyono**
- Research & Development Center for Population — *Pusat Litbang KependudukanDaerah* — **Djoko Yuwono**
- Research & Development Center for Economy, Developoment & Regional Finance — *Pusat Litbang Ekonomi, Pembangunan & Keuangan Daerah* — **Sunarni**
- Research & Development Center for Community — *Pusat LitbangDaerah Pemberdayaan Masyarakat* — **Rosmiati Syamsidar**

Education & Training Agency
Badan Diklat
Sudarsono Hardiosukarto

- Secretary — *Sekretaris* — **Usman Sood**
- Government Management Center — *Pusat Manajemen Pemerintahan* — **Eddy Budiianto**
- Functional Center — *Pusat Fungsional* — **Moh. Marwan**
- Engineering Center — *Pusat Teknis* — **Rinto Ahvadi**
- Leadership Center — *Pusat Kepemimpinan* — **Darma Setiawan Salam**
- Development Population Center — *Pusat Kependudukan Pembangunan* — **Moh. Karim Mustari**

3849930

Director General of Nation Unitary
Direktur Jenderal Kesatuan Bangsa
Muhanto A.Q

- Secretary of Dit.Gen. — *Sekretaris Dit. Jen.* — **Moch. Roem**
- Director of Politic Institutional Relation — *Direktur Hubungan Kelembagaan Politik* — **Tristan Hutapea**
- Director of Nation Integrity — *Direktur Ketahanan Bangsa* — **Kartiko Purnomo**

Direktur Jenderal Otonomi Daerah

- Director of Community Protection — *Direktur Perlindungan Masyarakat* — **Hadi Sutanto**
- Director of Social Institution — *Direktur Pranata Sosial* — **Margini Kenda**
- Director of Comflict Handling — *Direktur Penanganan Komflik* — **Domue Abdie**

3453510

Director General of Regional Autonomy
Direktur Jenderal Otonomi Daerah
Oentarto

- Secretary of Dit.Gen. — *Sekretaris Dit. Jen.* — **Triyuni**
- Director of Policy Facilities and Regional Autonomy Reporting — *Direktur Fasilitasi Kebijakan dan Pelaporan Otonomi Daerah* — **I. Made Suwandi**
- Director of State Officer — *Direktur Pejabat Negara* — **Dardio Sumardiono**
- Director of International Communication — *Direktur Hubungan Antara Negara* — Svahrir
- Director of Regional Financial — *Direktur Tehnik PelaksanaanDaerah* — **Wahyu Moch. Najib**
- Director of Implementation Technical Management — *Direktur Pengelolaan Keuangan Daerah* — **Sugiarti**

7942631

Director General of Regional Development
Direktur Jenderal Pembangunan Daerah
Seman Widjojo

- Secretary of Dit.Gen. — *Sekretaris Dit. Jen.* — **Suhatmansyah**
- Director of Regional Development Harmony — *Direktur Keserasian Pembangunan Daerah* — **Sonny Soemarsono**
- Director of Living Environment and Spatial Planning — *Direktur Lingkungan Hidup Daerah dan Penataan Ruang* — **Djubaiti**
- Director of Planning and Regional Development Evaluation — *Direktur Perencanaan dan Evaluasi Pembangunan Daerah* — **Wasli Siregar**
- Director of Regional Business — *Direktur Usaha Daerah* — **Tjahja Supriyatna**
- Director of Regional Potential — *Direktur Potensi Daerah* — **Sugeng Sasomo**

323235

Director General of General Government
Direktur Jenderal Pemerintahan Umum
Probo Nurdjaman

- Secretary of Dit.Gen. — *Sekretaris Dit. Jen.* — **Suhatmansyah**
- Director of Regional Development Harmony — *Direktur Keserasian Pembangunan Daerah* — **Sonny Soemarsono**
- Director of Living Environment and Spatial Planning — *Direktur Lingkungan Hidup dan Penataan Ruang* — **Djubaiti**
- Director of Planning and Regional Development Evaluation — *Direktur Perencanaan dan Evaluasi Pembangunan Daerah* — **Wasli Siregar**
- Director of Regional Business — *Direktur Usaha Daerah* — **Tjahja Supriyatna**
- Director of Regional Potential — *Direktur Potensi Daerah* — **Sugeng Sasomo**

7995104

Director General of Rural Community Empowerment
Direktur Jenderal Pemberdayaan Masyarakat Desa
H. Ardi Partadinata

- Secretary of Dit.Gen. — *Sekretaris Dit. Jen.* — **Bambang Setiadi**
- Director of Institutional and Community Training — *Direktur Kelembagaan dan Pelatihan Masyarakat* — **Arwan Effendi**
- Director of Community Economy Business — Direktur Usaha Ekonomi Masyarakat — **K. Paibonan**
- Director of Community Social Culture — *Direktur Sosial Budaya Masyarakat* — **Endang Sri Wigati**
- Director of Natural Resources and Efficient Technology — *Direktur Sumber Daya Alam dan Tehnologi Tepat Guna* — **H. Syamsul Arif**
- Director of Rural Government — *Direktur Pemerintahan Desa* — **Persadaan Kirsan**

Director General of Population Administration Affairs
Direktur Jenderal Administrasi Kependudukan
Rahardi Haryanto

- Secretary of Dit.Gen. — *Sekretaris Dit. Jen.* — **Widodo Yusuf**
- Director of Population Registration — *Direktur Pendaftaran Penduduk* — **K. Suprapto WR**
- Director of Informasi Kependudukan — *Direktur Information of Population* — **Wahyudi W. Putro**
- Director of Vital Registration — *Direktur Pencatatan Sipil* — **Abdul Rasyid Saleh**
- Director of Population Development — *Direktur Perkembangan Kependudukan* — **Mulyono Mawar**
- Director of Projection of Population Policy Settlement — Direktur Proyeksi Penyelesaian Kebijakan Kependudukan — **Bambang Sugeng**

Organization Chart of State Ministry of Women Empowerment
Struktur Organisasi Kantor Menteri Negara Pemberdayaan Perempuan

June 2002