

2) Low income level of fishermen in Central and West Flores

The socio-economic survey findings of the study area also show that the income level in Ngada and Ende is higher in comparison to other districts. These districts can be categorized as high priority areas for poverty reduction and income generating projects.

(2) Gender

1) Low participation in social activities

Some communities are actively involved in promoting the equal participation of women in the community meetings. In contrast, other communities do not have community gatherings or do not allow women to speak in public, and the men are the decision-makers in the community. A lot of issues exist that are related to the social status of women in society. It is necessary to improve women's participation in social activities by resolving the issues described below.

2) Small-scale economic activities

The main economic activities of women in the fishing villages are sales of fresh fish and fish processing. These small-scale activities are conducted on an individual basis. As they work under same conditions and deal in the same product, they face stiff competition in the market and it is difficult for them to increase their income. Fish processing does not reflect a value-added price. Therefore, the price of processed fish is generally cheaper than fresh fish. Additionally, the job opportunities for single women are limited; with the exception of brokers because these women mainly deal in the fish catch of their husband's fishing boat. In view of the circumstances mentioned above, it is necessary to create employment opportunities through cooperative management of purchasing, sales, and processing activities.

3) Inadequate support system for women

P2K and P4K are public fund support systems for women. There are a few unsuccessful cases caused by mismanagement or the small benefits received from fund distributions shared by group members. These unsuccessful examples teach us that a financial support system should be flexible and provide training programs for borrowers to enable better financial management and repayment plans and to help the administrative staff to make proper assessments of the plans that are submitted.

2.9 Fishermen Supporting System/Fishery Extension Activities

2.9.1 Fishermen Organization

The organizations of fisherfolks can be grouped into two categories, namely KUD Mina (Fisheries Related Village Unit Cooperatives), and Kelompoks (Groups). The system and structure of these organizations is briefly described below.

(1) KUD (Kopersasi Unit Desa)

1) General description

KUDs or Village Unit Cooperatives were formed through merging of several village

economic units (BUUD) under a presidential order No. 4 in 1984 with the intention of forming multi-purpose cooperatives. BUUD (Badan Usaha Unit -Village Economic Unit) is an embryonic stage of village cooperative for each type of activity such as agriculture, livestock and fisheries. When a BUUD becomes self-sustaining in its operations, it is converted to a KUD. The Department of Cooperatives and Small Enterprises Development in the Ministry of Agriculture supervise a KUD, thus formed.

A KUD is basically a partnership within its members in order to achieve common goal (that is to increase economic welfare and living standard of each member). The fundamental principles of KUD are that: i) KUD belongs to its members; ii) each member of KUD has to get involve in managing the KUD; iii) the management of KUD will be chosen by its members; and iv) the profit distribution of KUD will be based on the condition of each member.

The organization of a KUD is usually comprised of the general assembly of members, board of directors and auditors. It also has a bureau for economic activities such as credit, kiosk (sales of fishing inputs, gears, daily goods, etc.), supply of fuel, etc. The board of directors composed of chairman, secretary and treasurer. The general assembly has the decision making power within the organization including to plan and implement the economic activities. The function of the board of directors is to plan and implement the economic activities.

Membership is on an individual basis irrespective of gender and he/she has to be an adult and living in the area. The members include farmers, fisherfolks, traders, etc. A prescribed membership fee has to be paid at the time of admission, and the members have to contribute to compulsory savings deposits, and shall abide by the rules and regulations of the cooperatives.

The role of KUD is to contribute the competitiveness of its members by giving them necessary support. There are three types of support: credit support, technical support and service support. In credit support, a KUD can provide working and investment capital fund for the members. In this part, the role of a KUD is similar to a bank, where the member can borrow money from KUD, and the KUD will charge an interest rate but it is lower than the bank interest rate. A KUD will also accept money from a member as non-basic saving and it will give an interest income to the member.

In technical support, KUD will assist the members to acquire a new and better technology in order to increase their productivity, etc. KUD will also provide inputs such as fishing gears, and other raw materials.

The other important role of KUD for its members is the service support such as buying and selling of its products, making arrangements in acquiring fishing inputs (fishing gears, ice, fuel, etc.) and daily necessities. In giving a service support, KUD will act a buyer and seller of the fish products from the members. By doing so, KUD will hinder the members from selling their products to the middleman.

There are three major capital sources of KUD, and these are i) their own savings, ii)

loan from a bank, and iii) profits generated. The savings consist of basic/minimum saving and non-basic saving. Basic saving comes from members who have to contribute an equal amount of money, and he/she cannot withdraw this money as long as he/she is still a member of KUD. Non-basic saving is a voluntary contribution to the KUD as his/her own saving/investment. Every year KUD will give an interest from their investment. As for the loan from a bank, KUD can act as a business entity, which can borrow money from the bank in order to support its working and investment capital. Certain percentage of profit generated by KUD is distributed to its members and the rest will be retained to add to its capital.

2) KUD Mina in the study area

A KUD related to fisheries activity is referred to as KUD Mina. According to the provincial data book (Dalam Angka) for NTB & NTT, the study area has a total of 287 KUD (134 in NTB and 153 in NTT) with a total membership of 448,038 persons (258,876 in NTB and 189,162 in NTT), and only 28 cooperatives (10%) are KUD Mina with 4,362 members. Of the 28 KUD Mina, 15 KUD Mina with 3,231 members are in NTB, and 13 KUD Mina with 1,131 members are in NTT. An evaluation report on KUD Mina in 2000 by DFCF indicated that the study area accounts for about 4 percent of the Indonesia's KUD Mina, and the report stated that, of the 28 cooperatives, 17 cooperatives are active, seven are not active and four have been successfully embarked to be self-reliant cooperatives. However, the report did not present a critical analysis on the performance, weakness, inadequacies, failures; reasons for non-active, etc. of the cooperatives (refer Table 2.9.1).

KUD Mina, in general, is not performing or functioning according to the founding principles and objectives. In fact they are not true cooperatives working in a mutual cooperative spirit to achieve their goals to increase economic welfare and living standard. They are like welfare groups from which members can obtain subsidies and credits from government and less expensive basic commodities.

There is generally no coordination of any fishery activities, either in production, marketing or in activities to acquire items of fishing gear, fuel and water through the cooperatives. Even the operation of an active KUD Mina is mainly oriented towards saving/lending operation, telephone service, and sales of limited daily commodities, and not in fisheries related activities such as marketing, processing of fish, supply of ice and fuel, etc. A summary of the operational status of ten fisher cooperatives visited in the study area is shown in Table 2.9.2. Their activities are mainly centred on credit operation with the initial capital provided as loan by the government, and the organizations do not have internal financial base accumulated through savings of members and revenue generated through economic activities. Although some activities are being implemented, they are not orientated towards fulfilling the adequate needs of the members and are not integrated with fish landings, marketing, processing, supply of fishing inputs (fuel, ice, oil, etc.). This deficiency can be attributed to several reasons, among which are lacks of leadership ability and management skill and experience, lack of financial base, etc.

(2) Kelompoks (Fishermen Groups)

1) General Description

Kelompoks are groups organized and formed under guidelines established by the Department of Agriculture. Fisher folks having potential for development are mobilized and organized into kelompoks (groups) in order to provide technical assistance and credit. The main aims of forming kelompoks within fisherfolks are to increase their knowledge and skills in fisheries as well as to change their attitudes to be independent and be able to manage their business, to increase productivity of their business in order to increase income and quality of their livelihood, and to strengthen the groups in order to develop them as a cooperative.

In developing or forming a kelompok certain steps are followed. Existing community of fisherfolks with potential for becoming a group is identified by extension workers; their formal leader (Kepala Desa), religious leader, etc. are consulted to get their support to have a meeting with the community; and then a meeting is held with the community including the formal leader, religious leader, fisheries extension workers in order to obtain their consensus to form a group or kelompok in the area.

Fisher folks are grouped into kelompoks based on the type of their activities. Kelompok may represent a gillnet group, purse seine group, hand line group, processing group, marketing group, etc. [Some examples are Kelompok Penangkapan (Fishing), K. Intam (Intensification of Tambaks), K. Mina Padi (Air Tawar), K. Penkola (Processing), K. Wanita Nelayan]. Each group usually has 15 to 20 members. The group has a leader (or chairperson), secretary, treasurer and section chiefs with respective role for activities such as marketing, social, budgeting (credit/saving), religious activities, etc. Each member is obliged to contribute to fixed saving (for example Rp 250,000/member) and monthly saving (Rp 250/month/person).

Kelompoks are also categorized on the basis of their ability into classes, namely Kelas Pemula (beginners), Kelas Lanjut, Kelas Madya and Kelas Utama. District fisheries offices assess the class of the group on basis of their ability to plan a business activity, to apply recommended technology and manage the natural resources, to implement and abide an agreement with others, to accumulate capital (fund raising) and spend rationally, to set good networking with others groups and KUD. In order to legitimize the kelompoks and to rate its achievement, the group is given approval accordingly; Kelas Pemula is approved by community head (Kepala desa), Kelas Lanjut by head of sub-districts (Camat), Kelas Madya by head of district (Bupati) and Kelas Utama by the provincial governor. Kelompoks that perform well and fulfil the eligibility conditions can be promoted to fisheries cooperatives after the evaluation and approval by the department of cooperative (Dinas Koperasi).

2) Kelompoks in study area

In the study area, there are 532 kelompoks in NTB and 619 kelompoks in NTT. Of the 532 kelompoks in NTB, 364 (68%) are fishermen groups, 68 (13%) are women groups, 68 (13%) are tambak groups, 28 (5%) are fish processing groups, and the rest are business groups (refer Table 2). Of the 619 kelompoks in NTT, 328 (53%) are fishermen groups, 118 (19%)

freshwater fish culture groups, 84 (14%) are youth fishermen groups, 51 (8%) tambak groups, and 38 (6%) are women (processing) groups (refer Table 2.9.3).

Although a kelompok is organized, formed and provided adequately with techniques and equipment, etc., its performance, achievement and improvement depend largely on regular visits, guidance and communication by relevant offices and extension workers.

2.9.2 Fisheries Extension

(1) Structure

Fisheries extension in Indonesia is integrated with agricultural extension services. Extension services are planned and coordinated by the Agency for Agricultural Education, Training and Extension (BPLLP), which is agency of Ministry of Agriculture for integrated services, but the provincial governments are administratively responsible to extension workers. The local governments, as a result of decentralization, are expected to play a greater role in forming policy, planning and implementing of the extension service including allocation of budget. However, during the study the status on policy, management and implementation on extension service has not changed.

The fisheries offices (Dinas) at the provincial and district levels are generally provided with a substantial number of staff, but they are not formally charged with responsibility for extension. However, the fisheries extension workers, who are currently under the coordination of provincial and district level fishery offices, are administratively under the department of agriculture, whose salaries and program budgets are allocated from national and provincial budgets.

Extension personnels in fisheries are still distinguished as PPL (extension workers) and PPS (extension subject matters specialist). PPLs have usually completed 12 years formal schooling and followed by special three-month course at training centre for extension services. PPSs are university graduates in related subject who are provided more than three months special training in their subjects. Under the new system, these categories of PPL and PPS will not be applied, and instead the extension workers are to be categorized according to the government ranking of officers. The new classification is Penyuluh Trampil (skilled extension workers) for officers with 3A rank and Penyuluh Ahli (expert extension worker) for officers with 3B rank.

The annual reports of fisheries offices indicate there are 112 PPLs (extension workers) and 18 PPSs (subject matter specialists) in NTB, and 64 PPLs and 5 PPSs in NTT. These extension personnels are located in the agriculture extension stations. The extension activities are not on a regular basis; it depends largely on the planned programs or projects and availability of budgets through some programs. For example, the extension and training on tambak culture seemed to be actively conducted in NTB because it is a part of a JBIC loan project.

The institutions related mainly to agricultural extension services at local levels are DIKLAT, BIPP and IPPTP, but they cover some aspects of fisheries.

1) DIKLAT

DIKLAT (Centre for Education and Training), is located in Mataram and it is a provincial training centre for extension workers, which comes under the BPSDM (Badan Pengembangan Sumber Daya Manusia = Agency for Human Resources Development in Agriculture) in Jakarta. This center offers basic and advance training that is compulsory for an extension worker. Advance training emphasizes more in subject matters and fieldwork. The whole training takes about three months. The courses cover among others the basic principles and methodology on extension, communication techniques, subject matters in respective sectors, formulating extension programmes, developing of groups, reporting, etc. The curriculum on fisheries is very limited and covers only freshwater and tambak culture.

DIKLAT schedules training program once or twice a year depending on the availability of fund. Currently, it trains about 120 persons on a budget available for 30 extension workers; thereby facing budget constraints. Training budget is from BPSDM and local government. Respective offices select eligible candidates for extension services. It also undertakes training programmes funded by other sources, such as with air force (entrepreneur training), P4K (income generating for small farmers project), IFAD (pest control in plantation).

According to the head of DIKLAT, the number of extension workers having fishery background is very few because most of the graduates of fishery schools or academy are not keen to become extension workers, and they prefer to work in the private sector such as tambak, shrimp culture, etc.

2) BIPP

BIPP (Balai Informasi dan Penyuluhan Pertanian = Center for Agricultural Information and Extension) is the district level Agricultural Information and Extension Center under the District Head. The role of BIPP is to arrange and manage extension services and it has several extension stations in the districts. Extension workers are also trained here using in-house trainers and trainers solicited from different agencies (Dinas) and private sector.

3) IPPTP

IPPTP is the Centre for Agriculture Technology Research and Studies located in Mataram, and similar centre is also located in Kupang (NTT). The center's main role is to mobilize, coordinate, and guide research and development activities of various institutions in the country to local levels. The center also undertakes research on agriculture products, field trial and provides appropriate technology, provides advice and formulates policy on agriculture sector for local government. Although it does not have direct contact with extension workers, it prepares extension materials for them. The center is administratively responsible to the central government including the budget, but it works in collaboration with local government.

(2) Extension under the new Ministry

The Ministry of Fisheries and Marine Affairs (MFMA) recognizes that the extension services have been largely inadequate and not appropriate, and therefore under the new administrative structure it has created a center for fishery education, training and extension with the aim to contribute to the fulfilment of the needs of the fisheries sector. This center will now focus their efforts on marine and aquaculture activities and will take the sole responsibility for undertaking education, training and extension in the field of fisheries sector. The Director of DFCF will technically supervise this center. The main tasks of the center will be to study and formulate policy and program for developing human resources in fishery sector in general as well as the extension; and to formulate the needs of education, training and extension.

Recognizing the need for such services by the new administration, a survey was conducted using a questionnaire in July 2001 with the aim to grasp the present condition in fisheries extension in Indonesia. In addition, direct observation of the existing extension services in selected provinces including NTB was carried out. Furthermore, a seminar was held in August 2001 to deliberate the findings, and discuss on the needs for improvement of fisheries extension.

2.9.3 Fisheries credit

There are three main credit schemes in general available from local development bank (BPD-Bank Pembagunan Daerah) for all sectors including fisheries, namely, general credit, program credit and channelling credit.

(1) General credit

General credit is a commercial credit that is available to any borrower, who meets the condition of the credit applying the market interest rate.

(2) Program credit

Program Credit means a credit under certain programs. Initially the source of the fund came from BRI (Bank Rakyat Indonesian). At present it comes from PT Permodalan Nasional Mandiri (PT. PNM). This institution is similar to BRI with a role to fund BPD (according to the new regulation on the roles of BRI). Although there were 17 types of Program Credit under BPD, currently there is only one credit scheme available that is KPKM (Kredit Pengusaha Kecil dan Menengah) which is credit for small and medium scale of business for any sector including fisheries. The conditions for the credit are stipulated by PT.PNM while the BPD takes role as the executing institution. The program credit sometimes receives financial and management support from IFAD, UNDP, ADB, WB, and JBIC.

(3) Channelling credit

Channelling credit has its source of fund from foundations and private sectors. At the present the BPD has credit fund from Yayasan Dakaf (Dakaf Foundation) and Department of

Cooperative (Dinas Koperasi). This fund provides credit for small business of the poor (Kredit Taskin) in any sector, such as in agriculture, trading, handicraft, etc. The Yayasan sets the credit conditions and takes all the credit risks, while credit management, i.e. preparation proposal, approval, monitoring, and repayment, is carried out by the respective offices (Dinas). For example, Dinas Pertanian (Agriculture) manages the small business credit in agriculture.

(4) Financing Applicable to Fisheries

In addition to the above general credit schemes, the other lines of credit available for fishermen are cooperative-based credits (KUD Mina and Koperasi Nelayan), PEMP Fund, P4K, PNT-GTZ, NGOs and JICA (Fukushi Shien Jigyou).

1) Fisheries cooperatives

The savings/credit operation of the fisheries cooperatives (KUD Mina and Koperasi Nelayan) is one source of financing available to member fishermen. The initial fund for credit operation is usually provided by the government through Cooperative Office (Dinas Koperasi); the fisheries cooperatives have to pay back with an interest. The interest varies from 6 percent to 10 percent per annum depending on the loan amount and repayment period. The cooperative is expected to mobilize its fund through interests, savings of members and other revenue earning activities. This line of cooperative-based credit is only provided to members who need it to cover fishing operation expenses and domestic needs. The lending amounts varies from Rp 100,000 to Rp 1.0 – 2.0 million depending on the cooperative's reserve fund, and the interest rate also varies from one or two percent a month. The cooperatives generally do not have large reserve fund to finance purchase of boats or engines, etc. Credit repayment and savings have also been significant problem among the cooperatives.

2) PEMP Credit

PEMP is an acronym of the Indonesian for the programme "Pemberdayaan Ekonomi Masyarakat Pesisir = Strengthening of Economy of Coastal Community". Under this programme a line of credit fund is established in 2001 by the office of the Coastal and Small Islands in 2001 with the aim to assist small scale fishermen adversely affected by the increase in fuel price. The fund for this credit programme is from the budget recovered on account of reduction of fuel subsidy. The goal of this programme is to increase income of coastal community through developing their economic activities and sustainable use of coastal resources. The implementation of the programme started in late 2001 and it covers 125 districts in 30 provinces; each district, depending on project sites, is allocated about Rp 600 to 800 million. The credit is only provided to groups and not to individuals; the amount of credit a group can get is about Rp 15 - 50 million.

The selection of groups in each district is conducted by the district fisheries office (DFO) and an intermediary body or management consultant (LEPP-M3). The intermediary body consists of representatives of village communities with an organizational structure consisting of leader, secretary, accountant and assistants; it also has an advisory board composed of village head, staff of DFO and local NGO. Implementation of PEMP is

sub-contracted to local NGO which works very closely with DFO in organizing group formation and establishing LEPP-M3. The management consultant and village head do the selection process to identify borrowers; a major workload involving processing of application, selection, and documenting of the credit operation is done by the management consultant, and DFO monitors the borrowers on repayment. The general selection criteria for selection of borrower groups are: minimum two years after formation of the group, have bank saving account, have fishing gear in case of fishing kelompok, have motivation to develop and prosper, minimum of 7 members and maximum of 15 in a group. Some 80 percent of the PEMP fund is utilized in the lending and 20 percent is for administration and management cost; of which 5 percent is for DFO and the remaining 15 percent to the management consultant. The amount of credit to a group depends on operation scale; the repayment is on monthly instalments with an interest of 0.6%.

3) A Credit program by JICA

JICA-Jakarta has set up a fisheries credit fund with the aim to improve the social status poor of those working as labourers to fishermen, to increase income and to conserve coastal environment. This is a one year programme (April 2002 to March 2003) and covers three districts in NTT (Ngada, Lembata and Alor). The credit fund is Rp 200 million, and it is to be provided to groups and each group will receive Rp 10 to 20 million for procurement of fishing gears. The programme is executed by a Jakarta based NGO (YAO) and local NGOs. The groups formed and provided with the credit are to be strengthened financially by promoting savings, membership fee and annual interest rate of 9 percent.

4) P4K

P4K is a group-based microenterprise promotion and lending program targeting the rural poor; P4K is an acronym of the Indonesian for the programme "Peminaan Peningkatan Pendapatan Petani-nelayan Kecil". It is jointly implemented by the Ministry of Agriculture (MOA) and Bank Rakyat Indonesia (BRI). The programme receives significant financial and management support from IFAD, UNDP and the Dutch Government. The programme has a group guidance approach using small self-help groups of approximately 10 members and encourages them to choose a group business either in agriculture or non-agriculture (includes fisheries). The programme directly focuses on building microenterprise skills, providing credit and promoting savings. In addition, it tries to link borrower groups with community activities and social services. The program operates throughout Java, Bali and Lombok.

In the filed P4K is being executed by the Agency of Agricultural Education and Training (AAET) of MOA, with the provincial managers and staff located in Agricultural Training Centers (BLPP) and district level staff at local level agricultural services and the field extension workers (PPL). The field extension workers identify communities with the potential to participate in the program based on their income level and opportunity for microenterprise development. Only households with annual per capita incomes below the monetary equivalent of the price of 320 kg of rice are accepted; households that qualify for participation are encouraged to form groups of 8 to 16 families. A group must save a minimum of five percent of

credit amount to receive its first loan, and in addition, must participate in two training sessions provided by extension agents.

NTB has been allocated an amount of Rp 3.5 billion for the year 2002 and the amount of credit per group is about Rp 3 million each group is allocated. Each group receives one loan which is divided among group members. The group assumes joint liability for repayment of the loan. Repayment is on monthly instalments with an interest of 1 percent and savings (compulsory and voluntary). The groups can apply for additional loans and the loan terms change. Specifically the interest rate increases to 2 percent a month and collateral may be necessary.

5) PNT-GTZ

The project entitled Self-Help Promotion for Low Income Communities in Critical Rural Areas in Nusa Tenggara (PNT) has completed its phase 1 (1997-July 2002) and plans to move to Phase 2 (Aug. 2002 – 2005). The project organized 1,138 self-help groups consisting of 150,000 poor farmers, fishermen and landless households in 6 districts of NTB and NTT. One of the tasks of the program was to recover loans which had been given to the poorest villages by a government programme called Inpres Desa Tertinggal (IDT) in 1996/97 with the aim to establish credit and savings groups. The monies have not been recovered due to lack of training and guidance to the borrowers. Revolving credit system was introduced in PNT-GTZ programme to recover these loans and to establish a transparent and well functioning savings and credit system with bookkeeping and accounting. The source of revolving fund for the credit operation is from savings of groups from sales, food for work, and loan repayment with interest. The interest is 18% per annum.

6) NGO Related Credit Activity

There are some NGOs involved in fisheries sector but they are not a source of financing to the fisherfolks. NGOs are normally contracted to play intermediary role in identifying and organizing groups and assisting in the creation of credit program using credit funds of different sources. For example, under the ADB-Co-fish project, a local NGO was asked to assist in establishing a LKMP-micro financial body for coastal community in East Lombok. An initial fund of Rp 21 million was provided by the project and the LKMP has to mobilize further credit fund from banks.

The above applicable financing schemes 1) ~ 6) are group based credit targeting low-income clients in rural areas. The scheme is useful as it makes very small loans and it serves well for majority of the rural inhabitants as majority of the clients are too poor to secure larger loans available from commercial banks. Formation of self-help groups is emphasized in order to establish business on a group basis. Members of borrowing groups are held jointly responsible for the repayment of their group loan.

(5) Lesson learned by BPD in providing credit to a fishing community in a GTZ Program

GTZ conducted a project entitled "Small Scale Fisheries Development Project in

Lombok and Sumbawa" in late eighties. One of the programs, through a credit scheme, consisted of boat building and maintenance that included provision of about 25 FRP fishing boats and workshop with spare parts for boat and engine repair, and training of fishermen in boat and engine maintenance and repair. A fishing community in Labuan Lombok was selected and several groups were formed for this program. This program also aimed to encourage a revolving fund through the savings.

A team of program implementers (or coordinators) consisting of representatives of Dinas Perikanan, BPD and GTZ was formed, to guide, provide extension services, monitor and assist in the savings deposits and collection of repayments. During the early stage of the implementation, the program did go well with the involvement of the program implementers. The program was very successful that the community purchased land and built its own office and community hall with the savings. After the implementation of the program, the community had less contact with the program implementers as they were pulled out of the program. Therefore, BPD and Dinas Perikanan could not monitor and supervise the program and also could not put any effort to persuade the fishermen to repay the credit because there was no clear statement about who will be responsible for the program, Dinas Perikanan, the Bank or GTZ Project.

Consequently, there is no activity in the community, and only three fishing boats are in operation now. The community is disorganized, without a leader, and the members are disputing on the ownership of the purchased land and office building. The lesson learned in the program was that an efficient management body is needed. It is essential to build and foster a management body within the community that can take responsibility for its actions and resolve problems. On the other hand, government support is also necessary in terms of guidance, monitoring and supervision.

Cases of this nature have been observed elsewhere. Because they have generally failed to repay loans provided for boats, and fishing gear, working capital, etc., the banks and even the Department of Cooperatives are normally not in favour of supporting or providing any assistance to the fisheries cooperatives.

2.9.4 Development Issues

(1) Fishermen Organization

1) Weakness of KUD Mina

The concept of KUD has good principles in order to increase the economic welfare of the fisherfolks as the majority of them are from the low-income level society. However, there are some weaknesses especially during the implementation of the concepts besides the myriads of problems/issues facing the KUD. The major weakness is the lack of management skills and therefore, the cooperatives do not have the business outlook or entrepreneurship skill in their operation and activity. This can be attributed to the low educational level of the members. The solution to overcome this problem is to give managerial training, especially to those who will

be in charged at the managerial position, and to hire a professional who will manage the KUD and at the same time this professional will have to prepare and to train the member of KUD who will be the future management. In addition the government should also get involved more earnestly in terms of launching appropriate economic activities initially and providing guidance, supervision and monitoring.

KUD in general is insufficiently developed to permit the launching of a campaign among villagers to deposit their savings in the KUD. As a precondition, KUD should embark on a scheme to mobilize rural resources by establishing mutual trust among the people; making available managerial talent, particularly on credit/savings; providing marketing and supplies services; and making available training facilities for KUD managers/secretaries. The prospects of mobilizing voluntary savings are not encouraging because of past experiences of misappropriation of funds by members.

2) Kelompok

The kelompokks are not adequately monitored to grasp their conditions or provided with technical assistance and advice by extension workers. The visits of the extension workers are not regular (it may be once a year) as they themselves have their inadequacies and problems.

Members of kelompokks interviewed in the study area indicated the need for working and investment capital as the major constraint in addition to the needs of regular monitoring and guidance. The kelompokks, in general, have limited or no access to services such as small credit, bank loans that depend on the allocated program budgets by local and central government. Lack of access to formal credit has driven them to informal credit source, and hence they are at the mercy of local moneylenders.

The kelompokks are basically receivers of assistance and as such they have no initiatives to improve themselves and to work in cooperative spirit. The members in a group seem to work alone without any cooperation among them. Therefore, the kelompokks were formed basically to receive government assistance initially such as fishing boats and gears, processing equipment, etc. and easy credits.

(2) Fisheries Extension

The general weaknesses in the fisheries extension services are listed below.

- Institutional weakness is the major constraint of extension services as there is no proper section or office within the fisheries offices (Dinas) for planning, formulating, and implementing extension programmes.
- Lack of skilled manpower for fisheries extension; only about half the current extension workers have fisheries background, therefore they lack in the fundamentals of fisheries. They are mainly trained for agriculture extension.
- Training and visiting system is not applied regularly.
- Stakeholders are not involved in the process of formulating extension program.
- No in-house training for extension workers.

- Fisheries subject in the training curriculum of extension workers is very much oriented towards inland fisheries.

(3) Fisheries Credit

The issues facing the fisheries credits are as follows.

- In spite of the several credit schemes, there is still a lack in financing or loans available for fishermen, who need immediate finance to cover operation expenses, purchase of boats and engines, fishing gears. The main reason is fishermen have lost their credibility and trust with institutional sources such as local development bank (BPD)
- Cooperative-based small credits are only available to members and the interest rates are very high ranging from 25 percent to 50 percent and in some case 100%.
- In spite of long history of some fisheries cooperatives, they do not have reserve funds (capital) or mobilized adequate savings to extend to fishermen for investments. They depend too much on the handouts from the government.
- Members, basically, are not aware of the benefits of savings and do not have savings habits, in addition to poor repayment and defaults.
- There is no transparency in the accounting and bookkeeping in the credit activities of the cooperatives, and this is one of the reasons for bad image of fisheries cooperatives and low membership.
- In view of the fishermen's low creditability, poor repayment and defaults, group-based credit is promoted to ensure the members of the group are responsible for repayment of the loan.
- The group-based credit is promoted through the assistance of intermediary body such as NGO to support the groups or kelompok in training and guidance and ensure proper disbursement and effective use of the fund and recovery of the credit.

2.10 Environmental Consideration

2.10.1 Environmental Management Authority

The authority in-charged of coordinating environmental management and EIA (Environmental Impact Assessment) is BAPEDAL (Badan Pengendalian Dampak Lingkungan) or Environmental Impact Management Agency, which was established in 1990 by the provision of Kep Pres Number 23. Some districts have set up their own BAPEDALDA (Badan Pengendalian Dampak Lingkungan Daerah) or District Environmental Impact Management Agency. These BAPEDALDA will then be able to carry out their own assessment of the environmental requirements/ reports of projects with the assistance of Provincial BAPEDAL if needed.

The guidelines for determining significant environmental impact was first established by Kep Ka-Bapedal Number 56 in 1990, and types or kind of business and activity that requires AMDAL (Analisis Mengenai Dampak Lingkungan) or EIA decreed in Kep Men LH Number 17 in 2001.

2.10.2 Outline of AMDAL

(1) AMDAL Requirement

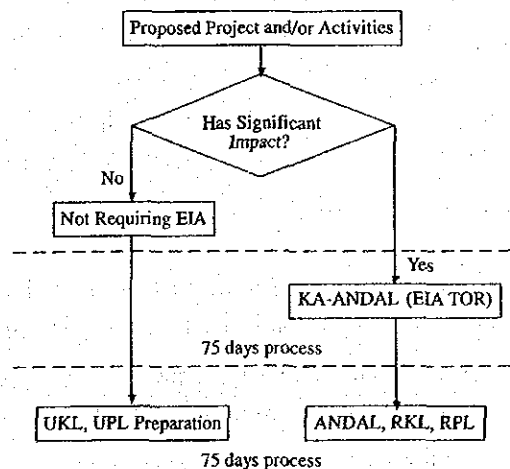
The legal requirements for implementation of AMDAL refer to the following laws/regulations:

- Kep Ka-Bapedal (decree of the director Bapedal) Number 56 year of 1994: about guidance on indicator of important impact
- Kep Men PU 58/1995: Guidance for procedure of AMDAL
- UU (law) number 23 year of 1997: about Environmental Management
- PP (Peraturan Pemerintah- Government Regulation) Number 27 year of 1999: about AMDAL
- Kep Men LH 2/2000: Guidance for Assessing AMDAL document
- Kep MenLH 4/2000: Guidance for AMDAL in Development of integrated settlement
- Kep Men LH (decree of Ministry of Environment) Number 17 year of 2001: Type/ kind of business and activity that requires AMDAL
- Technical Guidance in each institution.

Other than the above regulations/ laws, there are also sectoral regulations that apply such as land usage, conservation of natural resources and ecosystem, agrarian basic law, mining, forestry, fisheries, local government decentralization, usage of river water etc. These cross-sectoral regulations together with the presidential decrees and ministerial regulations from the various ministries such as Ministry of Environment, Ministries of Home Affairs, Industry, Agriculture, Forestry, Mining and Energy, Communications, Manpower, Health, etc. , makes Indonesian environmental laws complex and difficult to coordinate from such diverse sources particularly when these laws are further acted upon at provincial and district levels with the issuance of gubernatorial decrees.

(2) AMDAL Procedure

The procedure to determine whether a project requires an EIA is outline below:



Projects not requiring EIA will need to complete the UKL (Upaya Kelolaan Lingkungan) and UPL (Upaya Pemautawan Lingkungan) which will contain the measure to mitigate the expected impacts and the monitoring of these impacts. These UKL and UPL will be submitted to the concerned agency/ institution involved for their monitoring.

EIA is only applied to large scale, complex, and projects that potentially cause significant impacts, as well as those activities that will endanger protected or sensitive areas. Scale of activities that require EIA are outlined in Kep Men LH (decree of Ministry of Environment) Number 17 year of 2001. For the fisheries related sector, these pertain to:

- Construction of brackish water culture of prawn/ fish ≥ 50 ha
- Construction of fixed nets or pens, located in;
 - Freshwater area, ≥ 2.5 ha, or ≥ 500 units
 - Sea, ≥ 5 ha, or ≥ 1000 units
- Construction of a fisheries complex, harbour other than a general purpose harbour, consisting of:
 - Length of pier, ≥ 300 m
 - Fisheries industry of area ≥ 10 ha
 - Jetty of depth ≥ -4 m LWL (Low Water Level)

AMDAL consists of:

KA-ANDAL	TOR or scope of environmental impact that is going to be analyzed.
ANDAL	Thorough and detailed analysis on the possibility of large and important environmental impact that will occur from the planned activity.
RKL	The counter measure/ effort to be applied to the large and important impact that will occur because of implementing the planned activity.
RPL	The monitoring that will be undertaken for the large and important environmental impact that will occur because of implementing the planned activity.

2.10.3 Major Environmental Issues in the Study Area

Some major environmental issue of the fisheries sector in the study area are:

- Blast fishing damaging the coral reef and habitat
- Coral harvesting for lime production, building material, decoration
- Mangrove cutting for firewood, lime production, construction
- Poison fishing and destruction fishing techniques and gears
- Poor living conditions of fishing communities (lack of clean drinking water, unsanitary living environment, lack of toilet facilities, etc.)

The low income of the fishing communities and lack of alternative income opportunities compels the fishermen to practice unsustainable fishing methods and practices. Many in the communities are aware that impact of these practices or destructive techniques make it harder to catch fish, but with no alternative means of livelihood, income or obtaining food, they are obliged to continue the cycle of destruction and decline.

The decline in the quality of the marine environment impacts on the fisheries resources and in turn on the livelihood of the fishing communities. Without effective monitoring, enforcement of the illegal practices, and decisive management of resources, matters are likely to get worse.

Institutional constraints to sustainable management involve: unclear institutional mandates amongst the concerned agencies/ ministries to deal with the management issues; complicated legal framework and weak policy; weak law enforcement; inadequate information and extension support.

At the community level, some of the social factors that hinders sustainable practices are;

- Lack of allocation of rights and responsibilities over the coastal resources as coastal resources are considered common goods and opened to free access and exploitation/ destruction.
- Outside or migrant fishermen are blamed for destructive fishing practices. Some tend to operate as “bosses” who finance these activities contracting locals as crew. Fear of retribution also prevents locals reporting these infringers to the authorities.
- Easy and low investment cost of bombing or poison fishing encourages young or teenaged boys to engage in these activities. High cost of fishing nets, gears and technical knowledge precludes these inexperienced and poor young fishermen to practice sustainable fishing techniques.
- Lack of effective enforcement means that offenders are not afraid of being caught or are able to easily avoid punishment by bribe or lack of proof.
- *Lack of education and awareness of the importance of long term care and management of their natural resources.*

The government of Indonesia has instigated projects and programs in order to tackle some of the above problems, to protect, rehabilitate, and manage and to promote sustainable use of the marine resources. Some of the major ones in the study area are listed below.

2.10.4 Related Environmental Projects and Activities in Study Area

(1) CoFish project, ADB loan, 1998 to 2004.

This is a marine coastal management project, project office at Selong. Presently covers south eastern Lombok. Will expand in future to cover north coast of eastern Lombok and west coast of Sumbawa.

The CoFish project is in its initial stages with some components being developed in consultation with the local fisher communities. Some of the components of the CoFish project are:

- Coastal Fisheries Resource Management (CFRM)

- Community Development and Poverty Reduction (CDPR)
- Environment Improvement of Fish Landing Center
- Institutional strengthening/ community empowerment

Some of the project activities planned for implementation in 2001 are:

- Fish sanctuary area designation
- Awig awig (traditional law) harmonization and consensus
- Community development/ assistance for micro-credit (LP2SD)
- Information and Education at school level
- Awareness building through media (radio, films, wayang kulit, drama, poster, talk show, etc.)
- Water supply assistance/ activities
- Puskesmas (health centres) assistance/ activities
- Rehabilitation of fish landing centres
- Road linkage assistance

(2) TNC (The Nature Conservancy)

TNC is undertaking a 25 year management plan for the Komodo National Park. Part of TNC's management plans for the Komodo National Park (KNP) is to promote awareness of the local communities to the vulnerability of the marine ecosystem due to destructive fishing activities. Through a program of monitoring and enforcement, introducing alternative livelihoods such as sea-weed farming and aquaculture, and encouraging sustainable fishing practices, it is the objective of the management plan to conserve and protect the natural marine environment of the Park.

(3) COREMAP (Coral Reef Rehabilitation and Management Program)

COREMAP within Kabupaten Sikka is an AusAid funded program for 3 years from April 2001. The AusAid's COREMAP project in NTT is part of a national COREMAP program co-financed by World Bank and ADB loan. AusAid is supporting a NTT pilot community based management sub-project and the national capacity building and training sub-project. The pilot community based management sub-project involves an interactive participatory planning process with the stakeholders such as resource users, surveillance and regulatory authorities, planners and technical support agencies, and representatives of civil societies.

(4) Local government regulation (PERDA: Peraturan Daerah) to protect / conserve coral reef

This regulation aims to protect/ conserve coral reef in the Province. The request to initiate discussion on this regulation via APBD (Anggaran Pendapatan dan Belanja Daerah) budget has not been approved as of fiscal year 2002. Bima District however has passed a district regulation to prohibit the harvesting of certain coral.

(5) Local Forum for Marine Affairs

It was started 3 years ago; participants are Governors, Bappeda, Dinas Perikanan, NGOs (Yayasan Laut Biru, Lembaga Swadaya Masyarakat (LSM)), Universities, professional organization (Hipunan Nelayan Seluruh Indonesia HNSI). One of the output from this forum is the Coastal and Marine Management Strategic Plan.

2.10.5 Lessons/ Experiences from Related Projects

The three major projects above, i.e. CoFish in south-east Lombok, TNC in KNP, and AusAid's COREMAP, are still in their initial implementation stages. From initial discussion with their personnel, the lessons learned that may be of relevance to our project are:

- Active participation of the stakeholders especially the fisher community is important for the long term success of the project. The project's objectives must have their consensus and commitment.
- The fishermen community's awareness, understanding, and motivation towards conservation of their marine resources must be clarified in order to design appropriate community based resource management components.
- Sustained effort from the fishermen community is required as the collaborative resource management concept involves substantial community involvement and commitment. *Identification and involvement of active and committed community leaders with high awareness of the importance of resource conservation is imperative for implementation and long term sustainability of any collaborative resource management plan.*
- Enforcement and prosecution of illegal fishing activities should also be complimented by availability of alternative fishing method or livelihood. Free offer of fishing equipment to bombers should be considered carefully as there will be resentment from legitimate fishermen that do not practice the illegal blast fishing activities.
- Local traditional laws (awig-awig) are customary laws of the communities that govern acceptable practices within the community and impose sanctions or fines for offenders. Some areas have developed awig-awig to zone specific areas for types of fishing or specific activities (e.g. diving, sea-weed culture, handline fishing, closed areas, etc). Awig-awig could therefore be an effective means to discourage destructive fishing practices. However, this awig-awig will have to be revised and harmonised with the existing fisheries regulation. All effected parties and stakeholders within the community should be involved in the revision and development of the awig-awig as it should be seen as a property of the community and not imposed from outside.

2.10.6 Environmental Consideration Points relating to Fishing Village Development

- Drinking water supply for villages that lack this basic amenity should be provided.
- Reforestation of mangrove should be encouraged with the cooperation of the Department of Forestry. In line with this activity, community awareness and mobilization for the promotion of mangrove conservation should be undertaken to ensure long term

sustainability of mangrove reforestation programme.

- Patrolling activities of Dinas Perikanan with the cooperation of other relevant ministries/agencies should be on a more frequent basis to discourage blast fishing activities. Also greater publicity should be promoted to inform the fishermen community on the consequences of blast fishing activities and the penalty/ jail term for those caught using this illegal and destructive fishing method.
- Greater community participation should be encouraged for the management and conservation of their fisheries resources. This will require fisheries extension and support to the fishermen community to educate and promote greater awareness of the importance of the coastal and coral reef environment.
- To empower the fishermen community, awig-awig (local traditional laws) could be developed for the management and control of their fisheries resources and environment, to discourage destructive fisheries activities and to have clear penalties and fines for those that go against the awig-awig.
- Solid waste management should be promoted in the fishermen community by establishing a system for collection, burning or burying organic waste in designated areas. These areas should be identified by the community and should preferably be located away from houses and in down-wind location to the village.
- Alternative forms of livelihood that are not dependent upon consumption of the degraded resources should be investigated and promoted. As industrialisation and manufacturing is unlikely in the near future, promotion of eco-tourism could be an alternative in some areas to take advantage of the natural beauty of the marine environment.
- Value added measures and reducing post harvest losses will encourage the stakeholders to practice conservation and still reap the same benefits from reduced use of the resources.
- A major challenge for the future will be to ensure that the management experiences and knowledge gained from the various projects in NTB and NTT are translated into and taken account of in the provincial and district level policies. A mechanism to ensure this is to develop the District level strategic plans to reflect the experience and approaches that have been developed in the projects to incorporate these plans into the national vision and policies. This will help gain government support for the management efforts of the coastal communities to ensure long term sustainability of their natural resources.
- Improvement and measures to address the poverty situation of the fishermen communities is integral to any strategy for conservation of biodiversity and sustainable use of resources. There is a need to add value to resources so that conservation is more profitable to the communities, such as improvement of fish processing and other income generating activities.
- The concept of open access will eventually lead to over exploitation especially when people who have access to the limited resources increase with subsequent increase in competition to harvest the resources. Open access system will need to be tampered and modified to a more sustainable system with proprietary ownership resting with the fishing communities.

2.11 Local Economy and Financial Condition of District Government

2.11.1 Characteristics of Local Economy

In 1999, the GRDP (Gross Regional Domestic Product) was Rp.8.2 trillion and Rp.5.6 trillion in NTB and NTT provinces, respectively. The per capita GRDP in NTB was Rp. 2.1 million, and was 1.5 million in NTT, while the national average was 5.4 million in 1999. The ratio distribution according to industry is shown in the following table.

Distribution of GDP by Industry in 1999 at Current Market Prices			Unit: (%)
Sectors	Indonesia	NTB	NTT
Agriculture, livestock, forestry & fisheries	19.41	39.25	44.05
Within Fishery	2.29	3.34	3.21
Mining & quarrying	9.90	3.77	1.51
Manufacturing industry	25.78	5.43	1.88
Electricity, gas & water supply	1.19	0.30	0.71
Construction	5.99	8.36	7.77
Trade, hotels & restaurants	16.51	17.23	17.58
Transport & communication	5.97	9.86	7.73
Financial, ownership & business services	6.36	1.91	3.48
Services	8.89	13.89	15.25

Sources: Statistical Year Book of Indonesia 1999, BPS
BPS of Nusa Tenggara Barat, 2000
BPS of Nusa Tenggara Timur, 1999

In comparison to the rest of the country, the agriculture sector dominates in both provinces. In the fisheries sector, NTB province has a higher GRDP than NTT. The ratio distribution for each district according to industry is shown in Table 2.8.1.

- In Sumbawa district, the mining sector dominates, and contributes to NTB to receive export royalties.
- In Manggarai, Ngada and Lembata districts, the agriculture sector is predominant., The fishery sub-sector has the highest ratio in Lembata district.
- In the construction sector, Flores Timur and Lembata districts have relatively small ratios.
- In the Flores Timur district, the ratio of the service sector is high.
- In Ende district, the trade and hotel/restaurant sectors have the highest ratios due to contributions by the tourism sub-sector.

The unemployment rate was calculated as 6.8 percent in NTB, and 6.1 percent in NTT, while the national average was calculated as 6.5 percent.

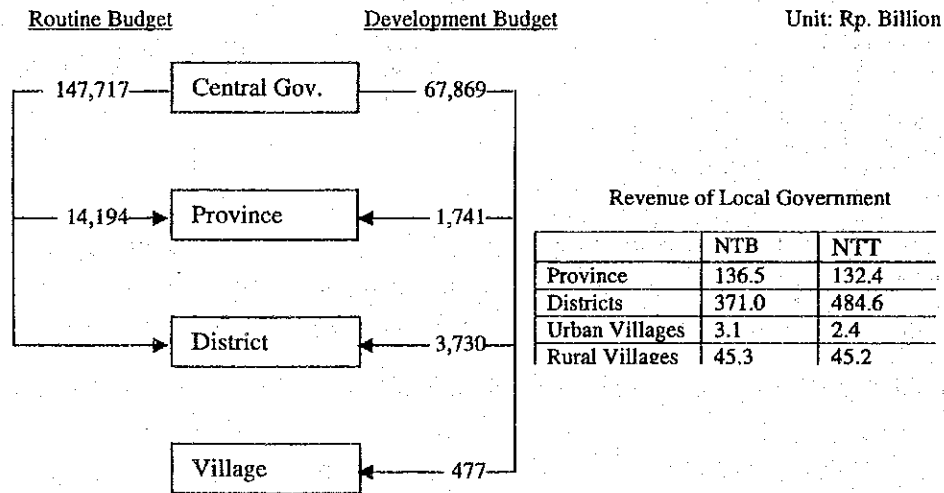
The export from NTB tripled in 1999 due to the start of the copper mining operation in Sumbawa Barat District, and decreased by one quarter in NTT province in 1998.

The poverty line in NTB was Rp.74,677/capita/month and Rp.66,143/capita/month in NTT, while the national average was Rp.74,272/capita/month in the rural areas in 1999.

2.11.2 Financial Structure of Local Government and Effects of Decentralization

(1) Scope of Budget

The scope of the national budget in FY1998/1999 was Rp. 147,717 billion for the ordinary budget and Rp. 67,869 billion for the development budget, for a total of Rp.215,586 billion. The subsidies for the local government were Rp.14,194 billion for the ordinary budget (9.6 percent of the ordinary budget) and Rp.5,948 billion for the development budget (8.8 percent of the development budget). The total revenues at the provincial level were Rp.8,970 billion, of which the revenue for NTB was Rp.136 billion (1.5%) and was Rp.132 billion (1.5%) for NTT. On the other hand, the total revenues at the district level were Rp.20,854 billion, of which the revenue for districts in NTB was Rp.371 billion (1.8%) and was Rp.485 billion (2.3%) for NTT.



Source: Statistical Yearbook of Indonesia 1999, BPS

Budget for 1998/1999

(2) Impact of Financial Changes after Decentralization

The self revenue earnings of Sumbawa district in NTB have slightly decreased, but the revenues from land and building and natural resources have increased suddenly, probably due to the start of full-scale operations of the gold mining mentioned above.

In contrast, the original revenues of the local Sikka district government have increased slightly, but the revenues from land and building and natural resources have not increased adequately, subsequently, the dependence on the national budget has becomes stronger. Moreover, the total revenue in the 2001 budget of Sumbawa district was 5.0 times higher than the actual revenue in 1997/1998, and is 5.6 times greater than Sikka district, while total revenue of NTB was only 1.9 times higher than the actual revenue in 1997/1998.

The characteristics of the districts can be summarized from the statistical data of each

district as shown in the following table.

Province	District	Budget per capita * (Rp. 1000)	Share of Local Govt. Original Receipts (%)	Share of Development Expenditure (%)
NTB	Sumbawa	224.6	5.3	33.2
	Dompu	186.5	1.5	25.6
	Bima	142.7	3.6	18.4
NTT	Manggarai	98.2	3.2	17.2
	Ngada	210.1	3.6	31.2
	Ende	196.5	3.9	22.9
	Sikka	185.3	2.3	34.9
	Flores Timur	175.6	3.2	19.6
	Lembata	175.6	3.2	19.6

In Sumbawa and Ngada districts, the per capita budget was relatively high, while that of Manggarai district was less than one-half. Concerning the share of local government original revenue, Sumbawa districts showed extremely high, while these of Dompu, Sikka districts were low. Sumbawa, Ngada and Sikka districts showed high share of development budget.

2.11.3 Local Fishery Sector Budget

(1) NTB

Development works in the fishery sector at the provincial level came from two sources, the original local government (APBD) and central government subsidies.

In 2000, development budget for the fishery sector in NTB was Rp. 863 million from original financial sources, while Rp. 187 million was subsidized from the central government. The budget stemming from original financial sources was much higher. In contrast, the regular budget was Rp.1,484 million, which exceeded the total development budget. The revenue for the fishery sector was only Rp. 268 million.

The regular budget of NTB district was Rp. 100.2 billion, while the development budget in 2000 was Rp. 120.5 billion. The fishery sector was allocated 1.5 percent of the regular budget and 0.7 percent of the development budget financed by original sources of the province. In the first phase, it was difficult to get the sequential figures of central government subsidies. The changes in the regular budget and development budgets financed by province's original sources are shown in the following table.

Fisheries Budget of NTB

	1998/1999	1999/2000	2000*	2001
	Actual	Actual	Actual	Allocation
Revenue	29,607	29,508	267,610	NA
- PPI	4,572	4,572	12,892	13,500
- BBI	22,610	22,610	22,117	23,575
- Other	2,425	2,326	232,602	NA
Expenditure	794,713	1,493,064	2,854,971	1,846,633
- Routine	598,813	851,140	1,514,674	1,232,905
- Development	195,900	641,924	1,340,297	613,728

Note: Asterisk mark indicates 9 months from April to December in 2000.

Source: Dinas Pendapatan of NTB

FY2000 was a year when NTB generated a large amount of revenue, but in the near future, it will have to compete with the districts due to decentralization. To obtain an adequate development budget, it will have to cooperate with the central government.

(2) NTT

In FY1999/2000, Rp. 655 million of the development budget for the fishery sector was financed from the central government, and Rp. 3,054 million was provided by foreign aid to construct PPI (OECEP), and the original development budget was Rp. 1,205 million. In contrast, the regular budget was Rp. 784 million and the revenue was only Rp.52 million.

1) District level

The development works in the fishery sector at the district level are supported by the original development budget of the districts, subsidies from the central and provincial governments. The sequential figures of the districts' financial resources were obtained only from Sikka district and are summarized in the following table.

Changes in the Development Budget of the Fishery Sector in Sikka District

Unit: Rp. 1000

	1998/1999 Actual	1999/2000 Actual	2000 Actual	2001 Allocation
Central Government.	5,500	2,625	0	0
NTT	7,975	325	214,050	0
District	19,938	0	191,393*	982,500*
Total	33,413	2,950	405,443	982,500

Note: Asterisk mark indicates balance fund.

Source: Dinas Perikanan of Sikka district

The changes in the regular budget and revenues from the fishery sector of Sikka District are shown below.

Unit: Rp. 1000

	1998/1999 Actual	1999/2000 Actual	2000 Actual	2001 Allocation
Revenue	2,161	2,950	3,060	NA
Routine Expenditure	124,124	142,725	391,665	NA
Within Personnel expense	108,759	124,362	363,468	NA

Source: Dinas Perikanan of Sikka district

The table indicates that the revenues and expenditures were not balanced for the fishery sector at the district level.

The total regular budget of Sikka district was Rp. 32,815 million, and the development budget was Rp.15,746 million in 2000; therefore, the budget ratio of the fishery sector were calculated at 1.2 percent.

The difficulty of obtaining a development budget may differ according to the superiority or inferiority of the regional industry. In any case, the benefits and impact must be described in order to allocate the limited resources produced by decentralization. (In Sikka

district the description for four fishery sector projects was done in 2001 as shown in the following table.)

Benefit and Impact described in Sikka District

	Benefit	Impact
Capacity building (Rp.50,000,000)	<ul style="list-style-type: none"> - increasing skill level of fishermen - increasing skill level of government officer in term of mariculture 	<ul style="list-style-type: none"> - increasing fish catch of fishermen - increasing mariculture activities
Infrastructure development (Rp.500,000,000)	<ul style="list-style-type: none"> - increasing quality of public services (for fishermen who landed their fishes at TPI) 	<ul style="list-style-type: none"> - increasing local revenue from fishery sector - hygienic environment and product can be guaranteed
Production improvement (Rp.400,000,000)	<ul style="list-style-type: none"> - increasing fish catch production - increasing sea weed production - increasing fishery investment - improving quality control of fishery product - improving fishery business partnership - fishery data will be available and will be served quickly 	<ul style="list-style-type: none"> - increasing income of fishermen - increasing income of sea weed farmer - increasing job opportunities from increase of fishery business activities - increasing quality of fish consumptions, inter islands as well as export of fishery product - increasing fishery business partnership - increasing accuracy of fishery data
Resource management (Rp.325,000,000)	<ul style="list-style-type: none"> - increasing operational control on fishery resources at coastal areas of Sikka - increasing people awareness - TPI can be constructed at Paga in 2002 based on survey and design that had been done 	<ul style="list-style-type: none"> - decreasing blast fishing and fish stealing - improving quality of fishing resources - improving fish landing - improving local revenue collected from fish landing facility

Source: Dinas Perikanan of Sikka district

FIGURES AND TABLES

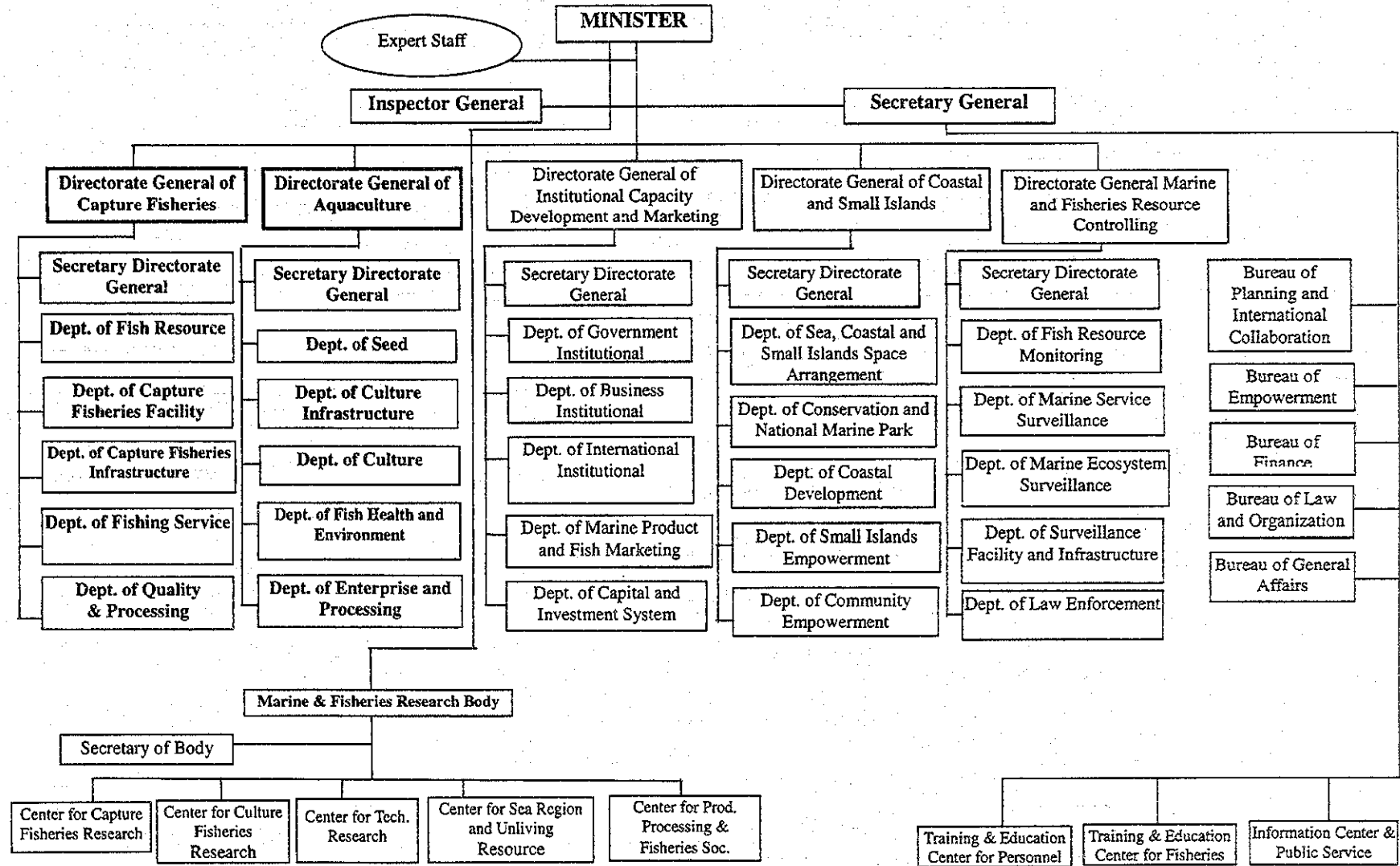
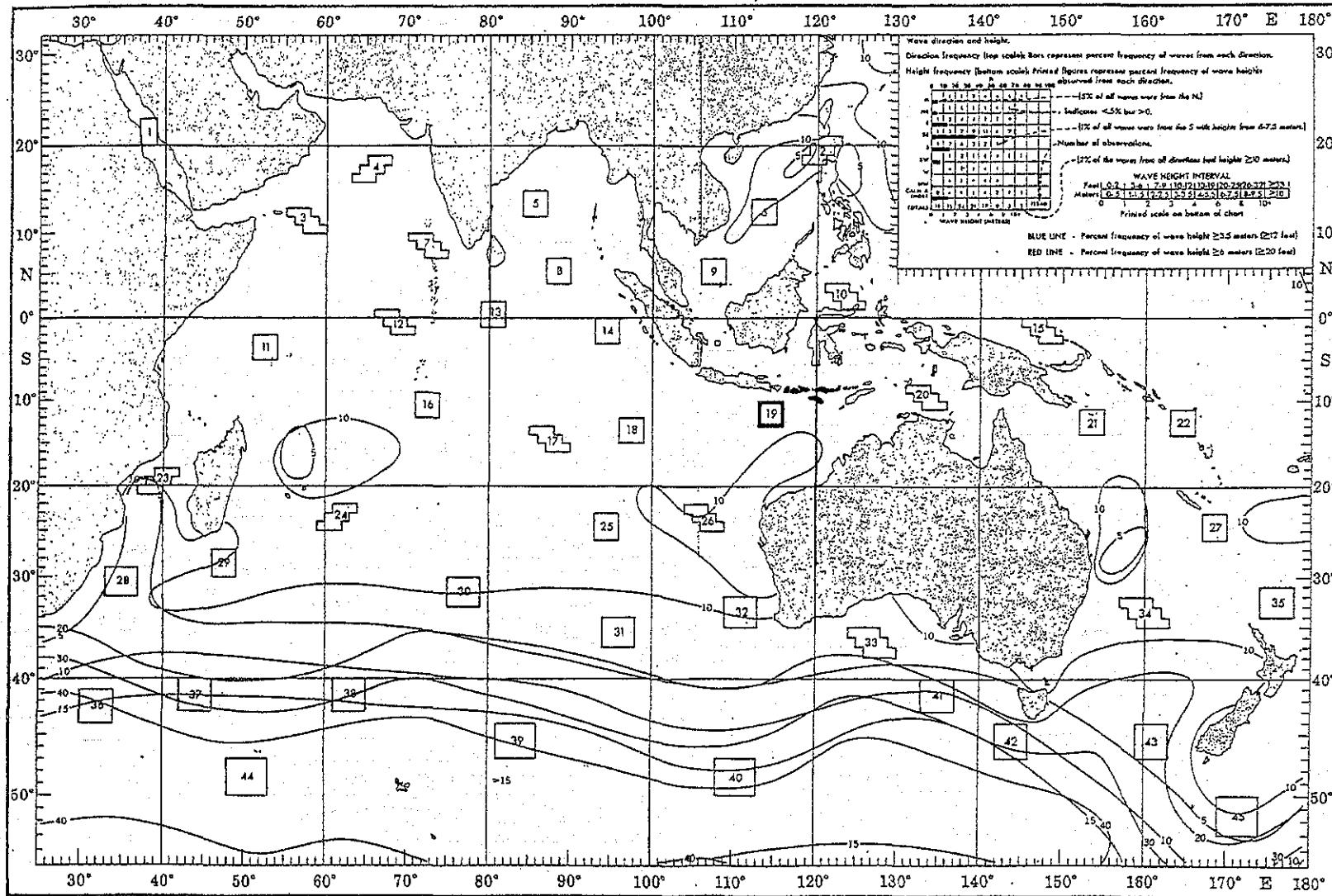


Figure 1.5.1 Organization Chart of Ministry of Marine Affairs and Fisheries (MOMAF)

JANUARY

WAVES (≥ 3.5 AND ≥ 6 METERS)

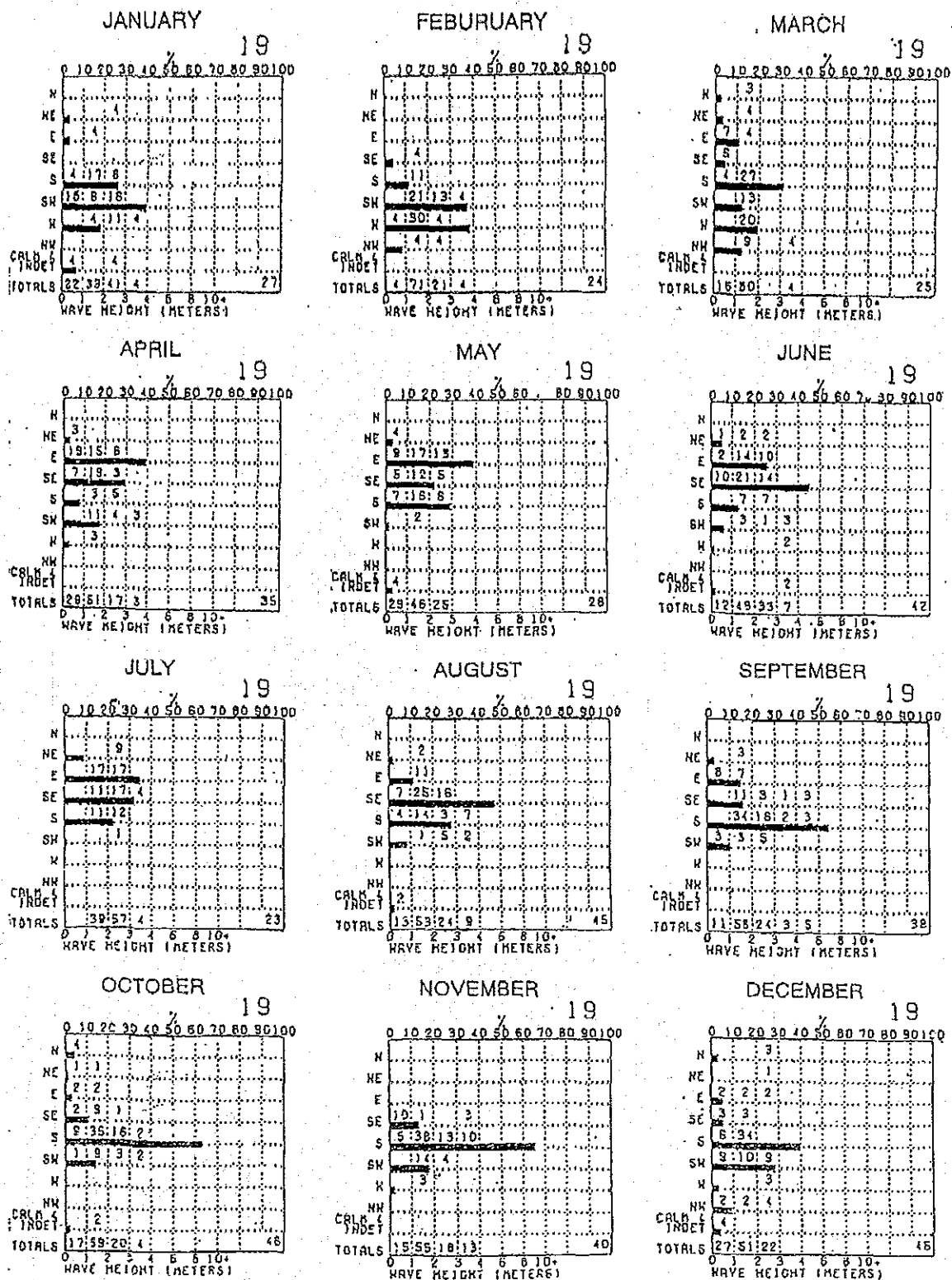
H-104



Source: Sailing Directions, Pub. 170 Edition 1988, Hydrographic/Topographic Center, Defense Mapping Agency USA

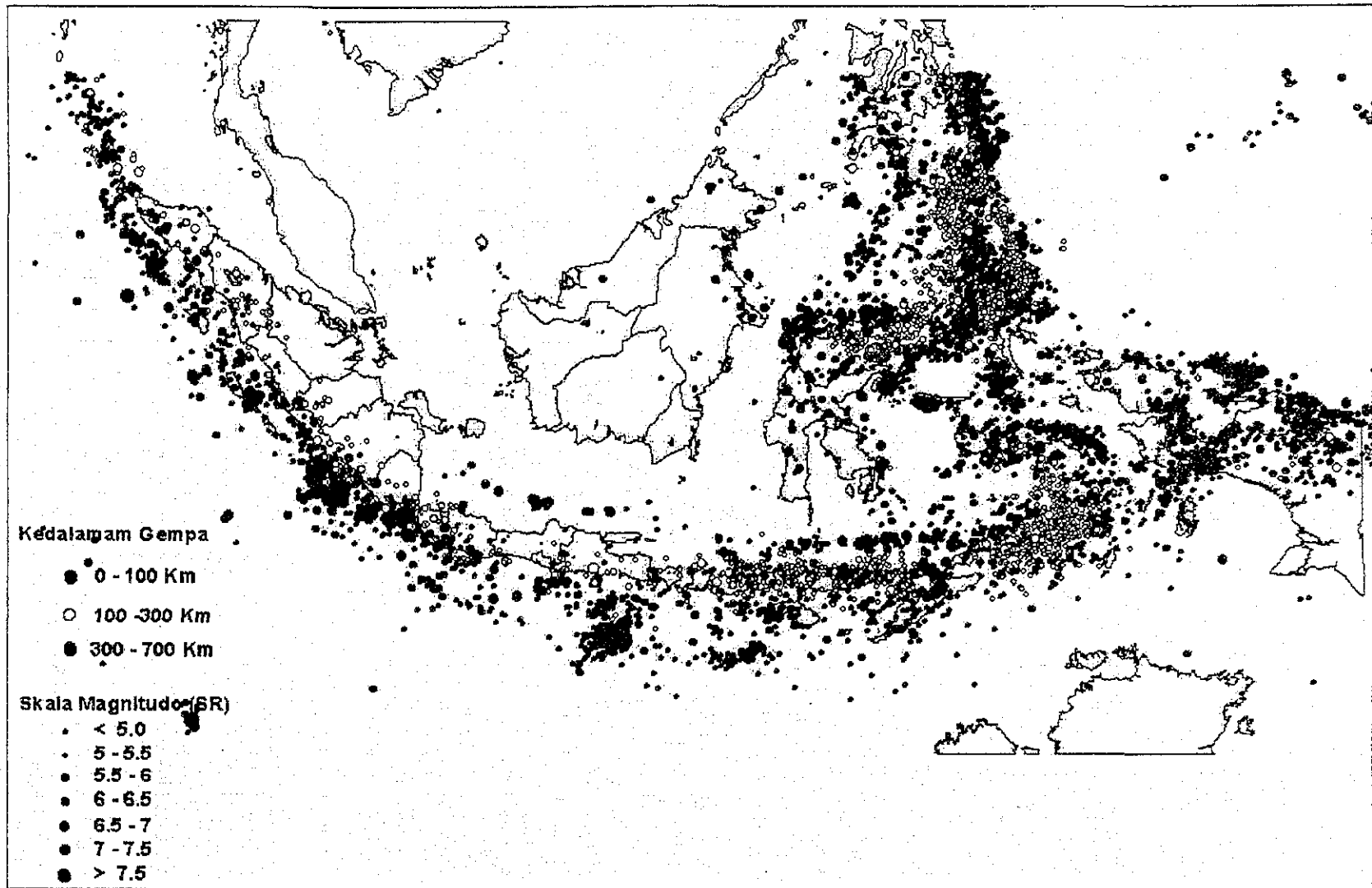
Fig. 2.1.1 (1) Wave Observation Points in Indian Ocean

WAVE DIRECTION AND HEIGHT AT NO. 19



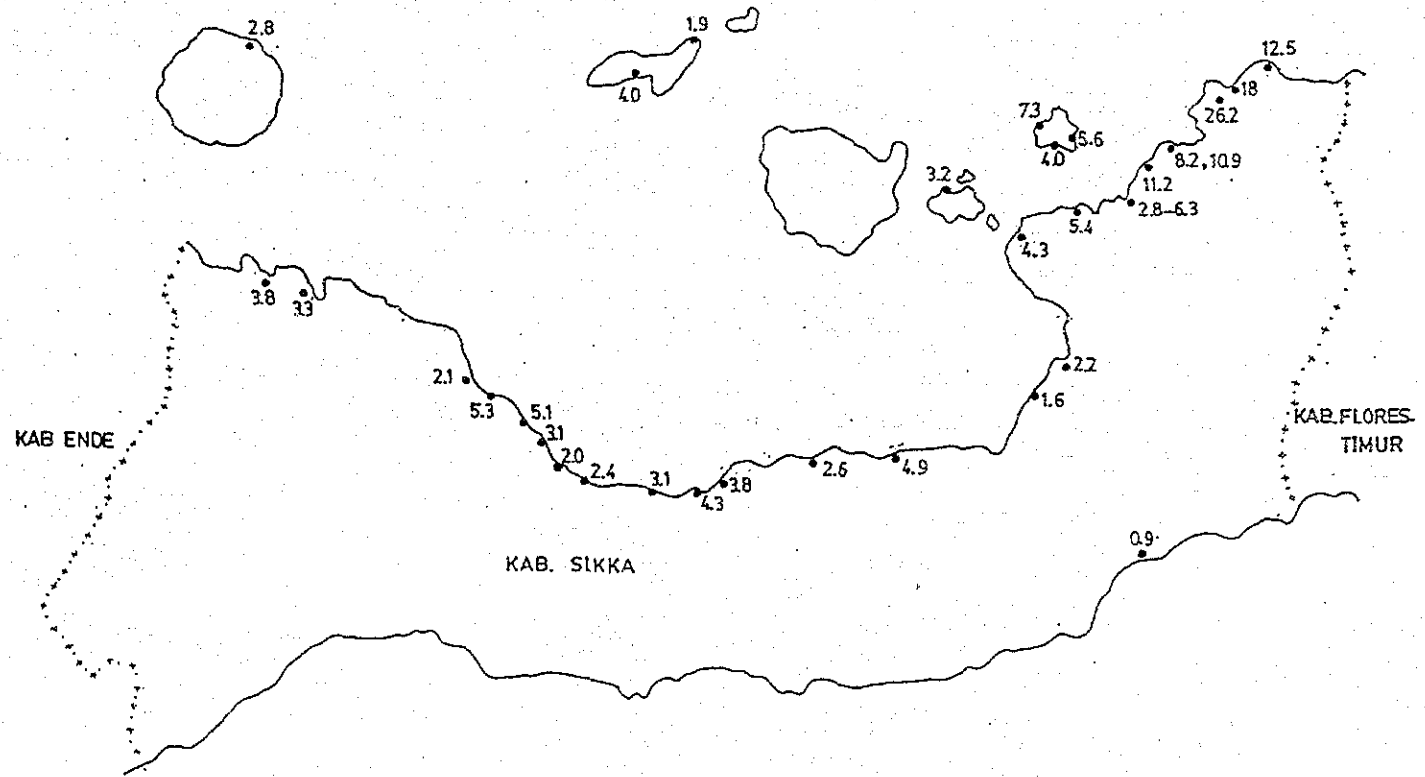
Source: Sailing Directions, Pub. 170 Edition 1988, Hydrographic/Topographic Center, Defense Mapping Agency USA

Fig. 2.1.1 (2) Wave Direction and Height in Indian Ocean(No. 19)



Source: Badan Meteorologi Dan Geofisika

Fig. 2.1.2 Distribution Map of Earthquake in Indonesia (1999-2000)



Source: Sailing Review Design Bangunan Laut PPI Maumere,
Draft Laporan Master Plan Buku-3 Pemerintahan Daerah Tingkat I Prop. NTT Dinas Perikanan, 1996/97

Fig. 2.1.3 Tsunami Height in Sikka District by Tsunami on Dec. 1992

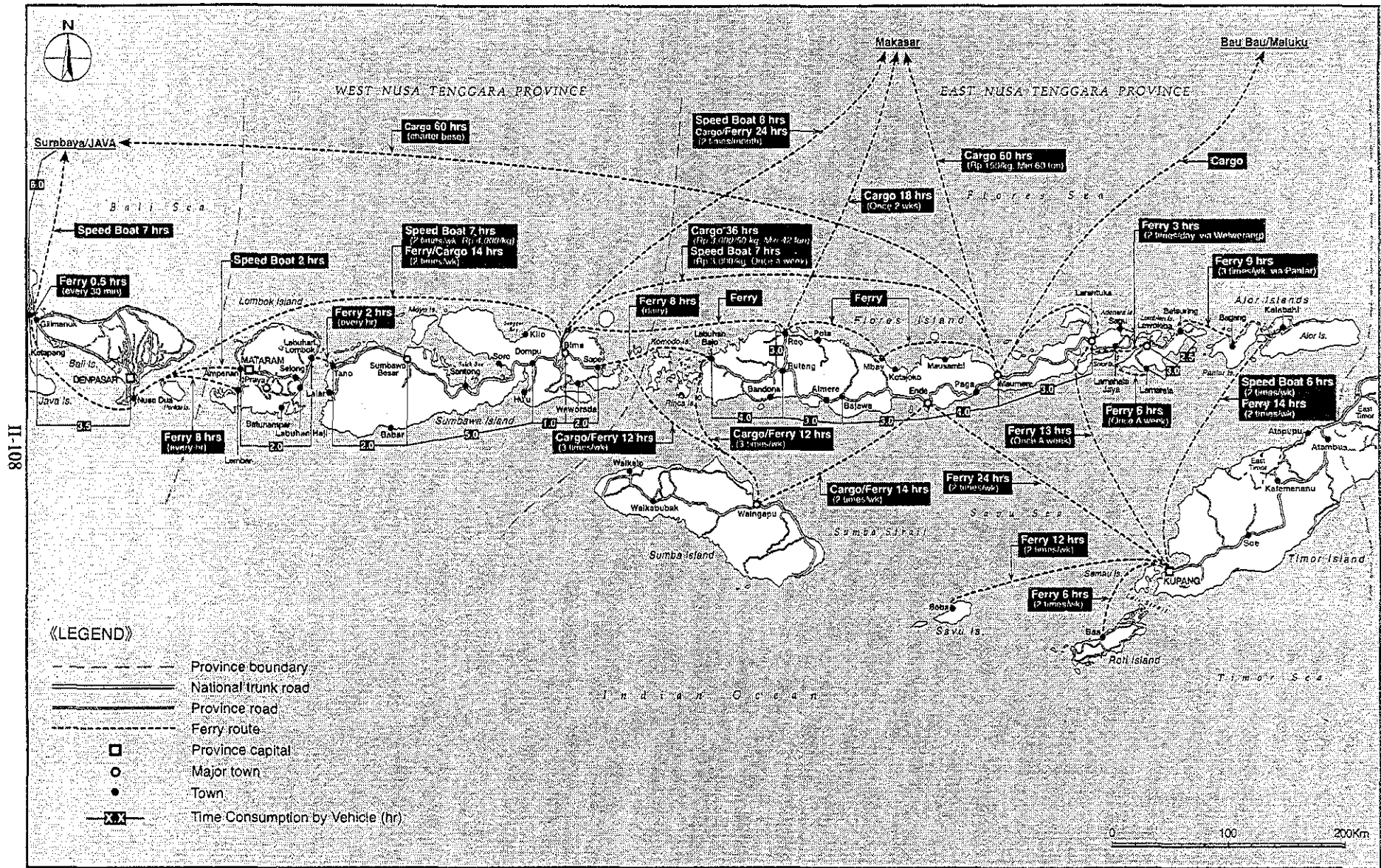
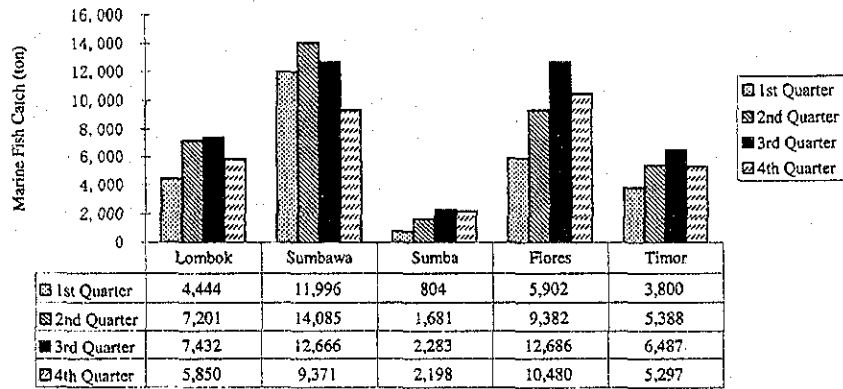
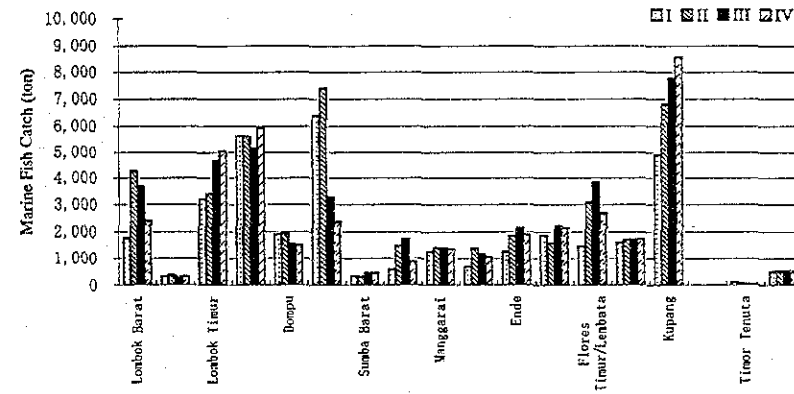


Fig. 2.1.4 Existing Transportation Network

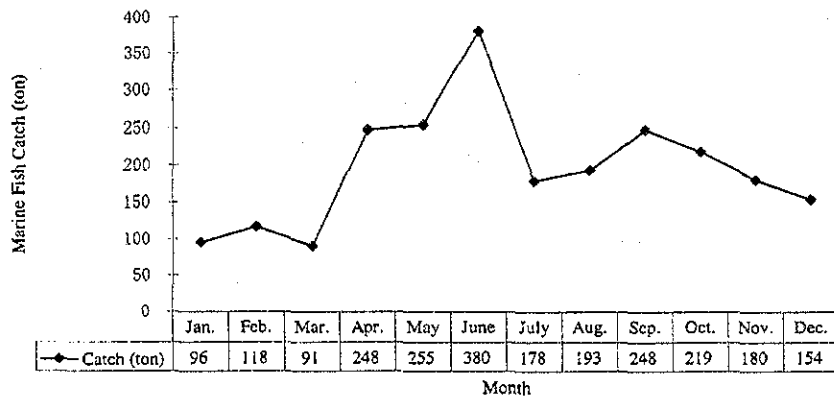
Quarterly Fluctuation of Fish Catch by Regions



Quarterly Fluctuation of Fish Catch by Districts



Monthly Fluctuation of Fish Catch (Mbongawani Beach - Ende 2000)



Monthly Fluctuation of Fish Catch (Kab. Sikka 2000)

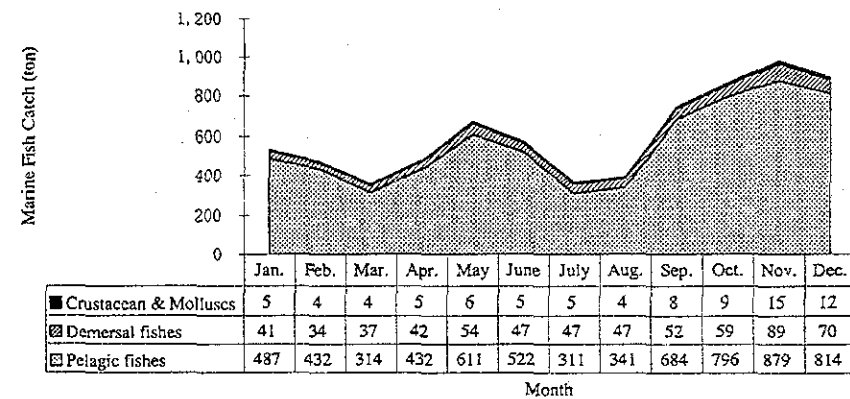


Fig. 2.4.1 Seasonal Fluctuation of Marine Fish Catch