DIRECTORATE GENERAL OF FISHERIES

IN COOPERATION WITH

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FISHERIES STATISTICS AND INFORMATION SYSTEM

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FISHERIES STATISTICS AND INFORMATION SYSTEM

1. Present Status

The Centre for Agriculture Data (PUSDATA) of the Ministry of Agriculture is overall responsible for planning and coordination of statistics in the agriculture sector. Fisheries statistics is under (PUSDATA) but in terms of implementation, it is carried out by the Directorate General of Fisheries (DGF) and the Provincial Fisheries Service. The DGF oversees the compilation of statistical data collected by the Provincial Fisheries Service at the sub-district level to produce the Annual Fisheries Statistics of Indonesia. The fisheries statistics enumerate the fishermen; fishing vessels and gears; and their respective production by species, coastal area and province. However, statistics on the trade of fisheries products and their values are collected by the Central Bureau of Statistics (CBS) which is overall responsible for statistics in international trade in Indonesia.

The present system of statistical collection was designed by Yamamoto in the seventies. Basically it involves the listing of fishing establishments and fishing vessels in each area by province and the sampling of fishing trips and catch made by fishing establishments and fishing vessels/units at landing centres and villages. Data from fish auction halls and large fishing companies are also taken. All the data is collected at the field level by the sub-district or Kecamatan staff using a series of survey, estimation and reporting forms. The data is then compiled into the Provincial Fisheries Statistics and the National Fisheries Statistics of Indonesia on an annual basis by the Provincial Fisheries Service and DGF respectively. There is usually a time lag of about two years in the compilation and publication of the Annual Fisheries Statistics. It contains information on fishing household/establishments, fisherfolk broken into 3 categories namely full time, part-time (major) and part-time (minor); fishing gears employed classified into 10 major groups; production by species; production by fishing gear; production in the fresh and processed form; and production according to coastal area and province. The Fisheries Statistics of Indonesia is primarily intended to provide basic fisheries data for the evaluation, planning, development and management of the fisheries industry. In addition, the DGF also extracts and compiles statistics on the import and export of fisheries commodities with data obtained from the Central Bureau of Statistics (CBS). These are published annually as the International Trade of Fisheries Commodities separately for imports and exports. Information contained in the export section covers volume and value of export; type of commodity exported; harbour of exit; province exported from and destination of product. Similarly the import section provides information on volume and value of imports; type of commodity imported; origin of country; port and province of import.

The fisheries statistics and trade information are distributed to the Ministry of Agriculture, Directorate-Directorate General within the Ministry of Agriculture, Centre

for Agricultural Data (PUSDATA), Ministry of Industry and Trade, Central Bureau of Statistics (CBS), Bank Indonesia, Bank Rakyat Indonesia, Regional Agricultural Offices, Provincial Fisheries Service, Technical Implementation Units (UPT) of DGF, Directorate-Directorate within DGF, the industry and interested public.

Apart from the fisheries statistics including its trade which are published, DGF also collects data and information on some other aspects of the sector. This include socio-economic information from case studies, market information through periodic monitoring, fishery resources information from research and survey, information on seed production and harbour operation.

2. Issues and Constraints

The present focus on fisheries statistics is mainly on the inventorization of the sector and its production. This has served its purpose during the early development stage of the industry which was production oriented. However as the industry progresses and becomes more complex through both internal and external dictates, a wider range of information, especially on the status and exploitation of the fishery resources is essential. Not only that, information must be available on a timely basis with easy access to facilitate use.

The constraints encountered in the fisheries statistics presently are as follows.

2.1. Scope

The Annual Fisheries Statistics is mostly a compilation of the fisheries statistics of the small-scale sub-sector. The industrial fisheries in the EEZ waters are not included, due most probably, to the non-compliance of the log book system by vessels operating there. Hence, the fisheries production recorded is under estimated. Further, the landings of fish are now given by the administrative classification of coastal areas and not by the fishing grounds where the fisheries are conducted. In addition, the data collection system is also more geared towards obtaining total production and not catch effort data for any particular fishery. There are thus limitations in the utilization of the data for scientific purposes especially in stock analysis.

2.2. Frame Survey

The frame survey developed in the seventies is out of date and needs review. Attempts are being made to make use of the latest agricultural census of 1993 to update the frame survey in harmony with that of the agricultural sector. The problem in this is that the frame survey for agriculture is up to the area level only whereas in fisheries there is a need to go down to the village level. However, the agricultural frame survey is under examination for refinement to accommodate fisheries use. Two areas in West Java namely the Kabupaten or District of Sukabumi and Serang have been selected for implementation at pilot level.

2.3. Methodology

The present methodology developed by Dr. Yamamoto involved the use of a series of forms to survey, estimate and submit the data to the Provincial Fisheries Service and DGF. It is all done manually and very time consuming. Accuracy is suspect as the job is rather tedious. Further, there is no incentive for the staff at the sub-district (Kecamatan) level, where data is collected, to carry out the work properly due to lack of resources and funds. Moreover, at such a level, it is normally a one man situation with many other duties to attend to. The frequent movement of staff, especially those experienced in the collection of data, further adds to the problem. A more simplified and cost effective method commensurate with the manpower strength at the field level may need to be designed and put in place.

2.4. Data Processing

Facilities for the efficient processing and compilation of data are also lacking. At the sub-district (Kecamatan) and district (Kabupaten) level, all the work is done manually or assisted by tabulators in some instances. The voluminous records on paper are then sent to DGF for further processing and entered into the Lotus database. This tedious process has resulted in a time lag of two years for the publication of the fisheries statistics.

2.5. Lack of Appreciation

Generally, there is a lack of appreciation for the collection of statistics especially at the field and province level. The importance of having statistical data for monitoring and evaluating the development of the industry is often not realized by them. As a result, very often low priority in terms of time and funds have been accorded to statistical work. There is a need to educate the administrators and workers at the field level on the role and importance of statistical information for planning and development use.

2.6. Fisheries Information System

The Fisheries Information System in DGF is more oriented towards the compilation of technical information on the fisheries industry including the activities of the DGF. There is considerable room for the expansion of its scope to cover more of fisheries research, management, development, trade, market intelligence, and socio-economic information. Such a service is more comprehensive and useful to all parties concerned with the sector namely the government administrators, researchers, fisheries communities, entrepreneurs, processors and traders of fisheries product.

3. Recommendation

3.1. Broaden Scope

The scope should be broadened to cover industrial fisheries in the EEZ waters. This can be achieved by enforcing the log-book system and ensure regular submission on a fishing trip or monthly basis. In order to ensure compliance, introduce penalties for defaulters such as non-renewable of license upon expiry.

Refine the data collection to a level of detail to enable the biological assessment of stock status and yield including catch effort data.

3.2. Improve Statistical System

The fisheries statistical system is due for review to update and improve the whole process. The frame survey, methodology and data processing techniques are over-taken by time and developments of the industry. There is a need to develop a system that will facilitate the collection of data on a wider scope, improve the efficiency of data processing in a cost effective manner and reduce the lag time in the compilation of more accurate statistics on the fisheries industry. In this context, the Japan International Cooperation Agency (JICA) in collaboration with the Government of Indonesia is implementing a 5 years "Agricultural Statistical Technology Improvement and Training Project" to improve agricultural statistics in the Centre for Agricultural Data (PUSDATA), Ministry of Agriculture. A component of the project is on fisheries statistics. It will review and modify:

(a) the statistical methods concerning planning, sampling survey and data analysis on fisheries statistics,
(b) data processing and utilization,
(c) training plan, curriculum and teaching materials including carrying out a training programme, and
(d) implement 2 pilot studies in West Java i.e. Sukabumi and Serang as model areas

The project which started in October 1994 and scheduled for completion in 1999 will result in an improvement of the current system.

3.3. Education

In the interim, there is a need to address the constraint in the general lack of appreciation at the ground level in statistics work and the importance of statistical data for planning and development purposes. This can be achieved by having regular forums with the staff involved in the collection of data including fisheries administrators at the ground level to discuss the subject and lay the ground work for the future, whilst addressing current work problems. DGF has initiated action in this direction. In 1994, DGF invited all the Head of Statistics in the Provincial Fisheries Service for a meeting in Jakarta to brief them on the statistics programme and their role in it. The meeting was fruitful leading towards attempting to cut down the time for

statistics compilation and publication of the Annual Fisheries Statistics by one year in the near future. The regular conduct of such forums will contribute towards improvement in the fisheries statistics.

3.4. Fisheries Information System

The DGF in collaboration with PUSDATA has drawn up an elaborate computer net working programme of the National Fisheries Management Information System (SIMKANNAS) and the Provincial/District Fisheries Management Information System (SIMKANDA I & II) using the local area network (LAN) and wide area network (WAN) computer system. The proposed SIMKANNAS and SIMKANDA programmes comprise 2 databases, namely one for technical information and another one for coordinating administration. The technical information database has 8 sub-systems (Diagram 1) as follows:

(i) management of fisheries resources
(ii) licensing
(iii) enterprise and production
(iv) seed production
(v) processing and quality control
(vi) facilities and fisheries infrastructure
(vii) fisheries information and technology
(viii) fisheries programme

The linkage and information flow of the 8 sub-systems are shown in Diagram 2. SIMKANNAS is also linked to the Agricultural Management Information System (SIMTAN) of PUSDATA in the Ministry of Agriculture. SIMKANNAS though rather comprehensive can be further strengthened to cover a couple of other areas such as socio-economics, surveillance and enforcement.

The concept of SIMKANNAS and SIMKANDA is a very good one and will greatly assist in the management and development of the fisheries industry. It should not remain a concept but brought to realization through early implementation. Admittedly, it is an ambitious programme involving a lot of resources e.g. manpower, equipment and funds. Perhaps, its implementation can be scheduled in phases concentrating on building up the basic manpower and infrastructure system first to focus on a couple of important areas such as fisheries statistics and fisheries resources management. When fully developed, SIMKANNAS and SIMKANDA can provide a very useful tool for the monitoring, control and surveillance of the industry's activities towards more effective management.

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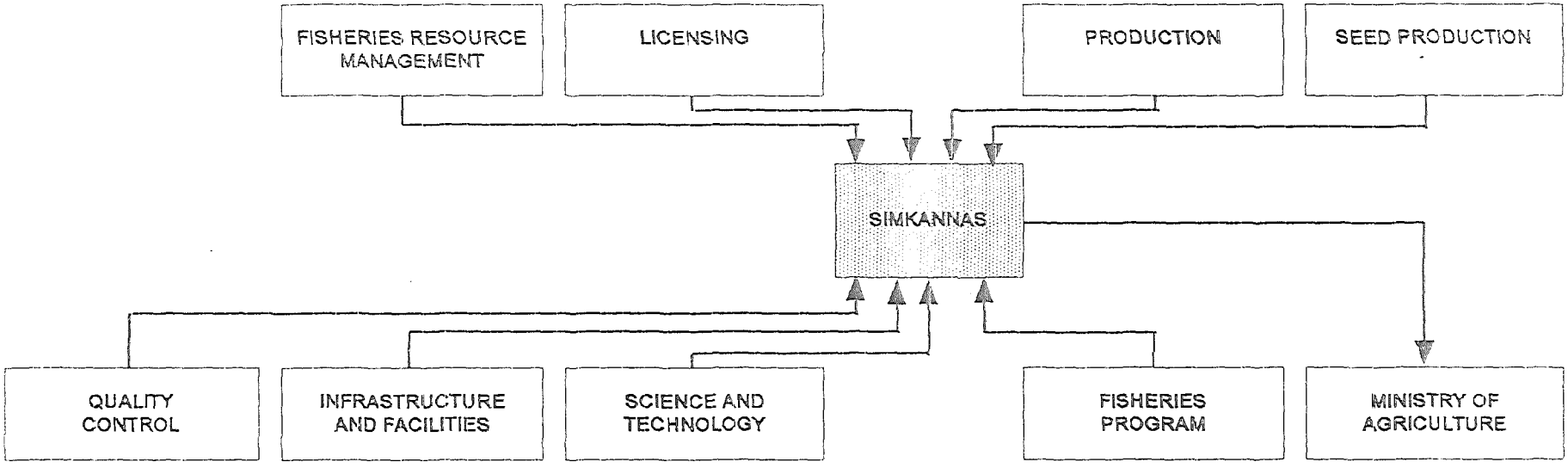
NATIONAL FISHERIES MANAGEMENT INFORMATION SYSTEM (SIMKANNAS)

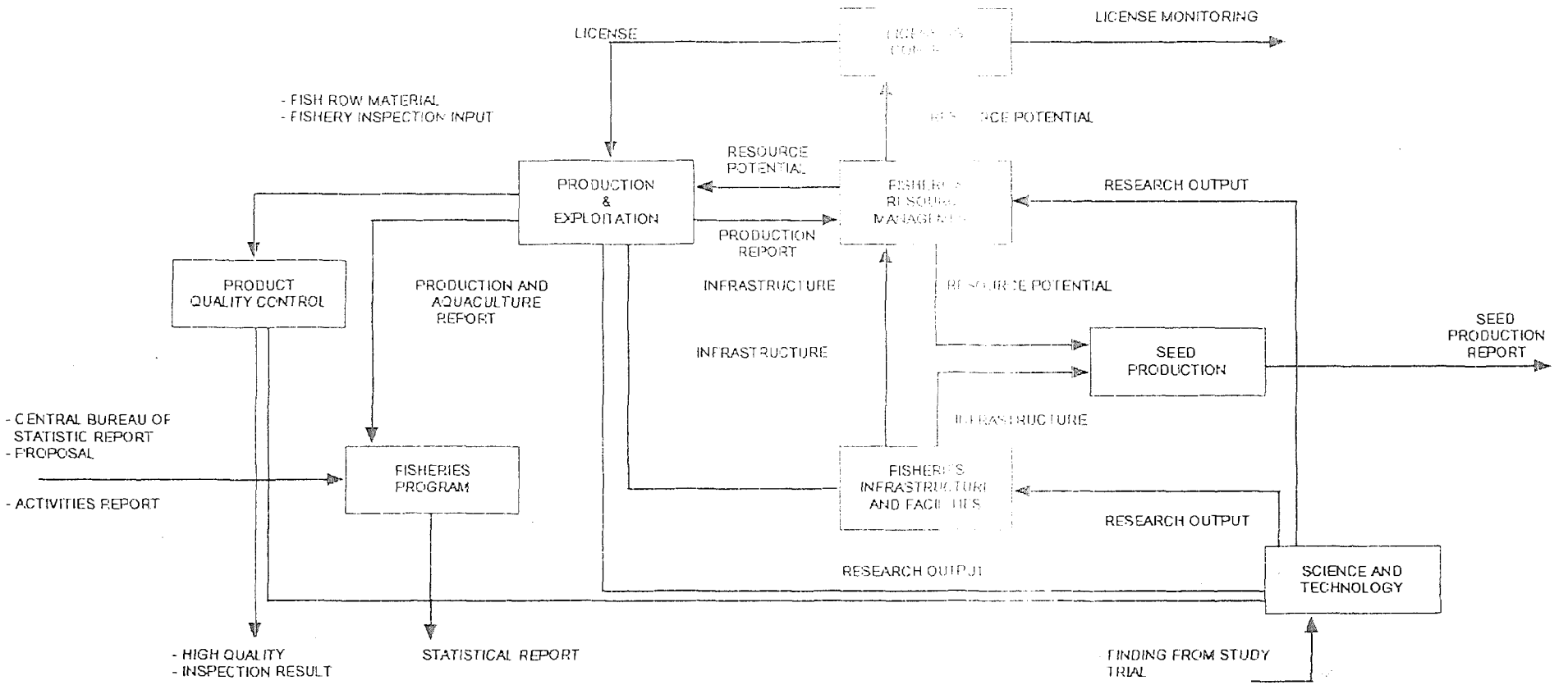
DIAGRAM 1



SOURCE : FINAL REPORT PERENCANAAN PENGEMBANGAN KOMPUTERISASI SISTEM INFORMASI MANAJEMEN PERIKANAN NASIONAL (SIMKANNAS) DIREKTORAT JENDERAL PERIKANAN, 1995

INFORMATION FLOW OF NATIONAL FISHERIES MANAGEMENT INFORMATION SYSTEM (SIMKANNAS)

DIAGRAM 2



SOURCE : FINAL REPORT PERENCANAAN PENGEMBANGAN KOMPUTERISASI SISTEM INFOMASI MANAJEMEN PERIKANAN NASIONAL (SIMKANNAS) DIREKTORAT JENDERAL PERIKANAN, 1995