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IN ASIA AND PACIFIC COUNTRIES
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1 OVERVIEW OF VIET NAM'S AGRICULTURE

Broadly speaking, Viet Namese agriculture has three main branches of economic activity, namely agriculture, forestry and fishery. According to Decision No.75/CP of 27 October 1993 of the government on the classification of economic activities, only two groups (Group 1: Agriculture and Forestry Activities, and Group 2: Fishery Activities) are considered as primary branches of economic activity. Forestry, which used to be one too, is now classified as a secondary branch, under Agriculture and Forestry Activities.

The Ministry of Agriculture and Rural Development results from the merger of three ministries – the former ministries of agriculture and food industry, of forestry, and of irrigation. The Ministry of Fishery has been reorganized and was known formerly as the ministry of marine products. It is now responsible for managing all fishery activities, including culture and capture.

Local offices of the agriculture and fishery ministries are as follows;

- Provincial level: the 28 coastal provinces each have two offices responsible for managing agricultural activities, namely the Office of Agriculture and Rural Development and the Office of Fishery. Inland provinces, on the other hand, only have the offices of agriculture and rural development, which handle all agriculture, forestry and fishery activities.
- District level: economic sections or agriculture and rural development sections of the district offices are responsible for managing such activities.
- Commune level: one member of the economic board of the commune is assigned to monitor agriculture, forestry and fishery activities.

In term of systems for the agricultural production organization, there have been several forms of production organization in Viet Nam as follows:

- State Economy: there are 1 035 units including 575 agricultural units, 409 forestry units and 86 fishery units.
- Cooperative Economy (6 000 cooperatives)
- Economy with finance supported by FDI
- Mixed Economy.
- Private and Individuals Economy (more than six million households)

In reality, farming and fishing households are the basic production units of Viet Namese agriculture, out of which statistical information is generated. State enterprises and cooperatives are mainly engaged in service activities. Among the 12 million households

in the rural area, there are more than 10 million agricultural, forestry and fishery households.

Agriculture plays a significant role in the national economy: in 1999, more than 72 percent of the labour force was engaged in agriculture, and the agricultural sector accounted for 25.4 percent of the gross domestic product and for about 45 percent of the country's exports in terms of value.

The main characteristics of Viet Namese agriculture are small-scale production and dispersal of households. Agricultural production is mainly self-sufficient. Although the production of commodities has registered some progress, it remains unstable. Concentrated large-scale production is not much developed, especially in the North and along the Central Coast of the country. Intensive farming of certain crops and of livestock and poultry has yet to be properly developed. Mixed culture is usual, including in the form of mixed business or combined agricultural, forestry and fishery production at household level. This state of affairs makes statistics gathering difficult.

2 ORGANIZATION OF FOOD AND AGRICULTURE STATISTICS

2.1 Organization

In Viet Nam, state statistics in general and food and agriculture statistics in particular are organized in a centralized way, meaning that the General Statistics Office is responsible for managing all state statistics. The statistical activities of other state agencies consist mainly of the collection of information for their own needs.

The system of state statistics is organized along administrative lines from central to provincial and district levels. At central level, food and agriculture statistics are handled by the Department of Agriculture, Forestry and Fishery Statistics (DAFFS) of the General Statistics Office. The department was set up in 1956 when the office was established. Since then, its name and scope of activity have changed but its functions have remained the same, namely the collection, processing and issue of quantitative information to meet the management needs of central and local governments. The information collected is used to formulate and monitor the yearly and five-yearly development plans of the agricultural sector.

DAFFS has four main sections/groups: Aggregate and Methodology, Agriculture Statistics, State Sector Statistics, and Forestry and Fishery Statistics. Total staff currently numbers 22, from an all-time high of 35. All are graduates, mostly in the field of statistics. The department has one director and two, sometimes three, deputy-directors.

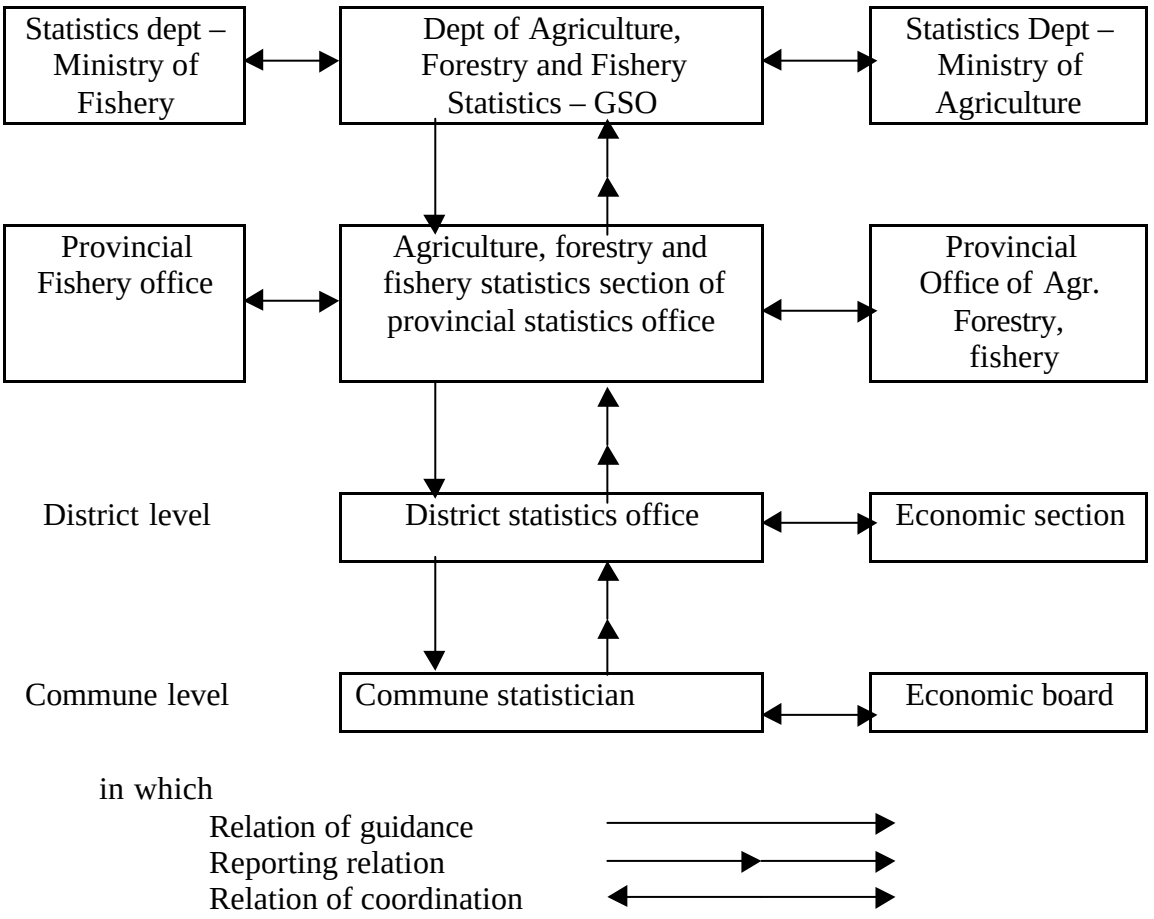
The department cooperates closely with the statistics departments of the agriculture and fishery ministries. It is responsible for collecting, processing and releasing the orthodox statistical data. Other operative statistical data are collected and released by the two ministries.

At provincial level, each provincial statistics office has a section (of five to seven persons) handling agriculture, forestry and fishery statistics. Its main functions are to organize and implement the reporting regulations system and conduct surveys according to DAFFS instructions. It collects and processes the data in close cooperation with related sections of the provincial offices of the agriculture and fishery ministries to reach a common estimation of production. Nonetheless, the section operates independently and releases its own results.

Each district office has a section of five to seven statisticians, some of whom are assigned to handle agricultural statistics. The section is managed and financed by the General Statistics Office. It cooperates with the economic section of the district office, notably when visiting the paddy fields to estimate production and yield. However, it is the leading office at district level responsible for conducting agricultural and fishery surveys and releasing survey results after the results are reviewed by the provincial statistics office.

At commune level, as per government regulation, one member of the economic board of the commune is responsible for statistical and secretariat work. The people's committee of the commune helps that person carry out surveys, as do the members of the economic or agricultural board of the commune. Cooperation at this level is even tighter than at higher levels.

Table 1. Structure of the food and agriculture statistics system in Viet Nam



2.2 Content of survey and dissemination of data

The following annual surveys are conducted by the system of food and agriculture statistics of the General Statistics Office:

2.2.1 Planted area and yield surveys of crops

For annual crops, surveys are conducted according to seasons of production: winter-spring and summer surveys for the whole country, winter surveys for the North and summer-autumn surveys for the South and Central Coast regions. Each year, four to six surveys are carried out for annual crops, two or three for planting and two or three for yield.

For perennial crops, there are yearly surveys on newly planted area, harvested area and yield.

The objective of these surveys is to release quantitative and orthodox information to meet the requirements of the government at various levels on cultivation, especially on food crops. Survey results are also used to calculate the food balance and paddy production that can be used for export. In Viet Nam, food production is the indicator planned and allocated by government at central, provincial, district and commune levels. Thus, the data on area, yield and production of paddy and other food crops have to satisfy the needs of authorities at different levels for the monitoring of seasonal, five-year and ten-year plans. This not only creates favourable conditions but also generates difficulties for statistics.

2.2.2 Animal husbandry survey

This type of survey is conducted twice a year on 1 April and 1 October.

The survey on 1 October is conducted to ascertain the number of head and production of livestock and poultry in all provinces of the country by the survey date. The results are used to assess the progress of livestock and poultry production of each province and to calculate indicators such as gross output, structure of agriculture, and growth of livestock and poultry. The complete-count method that used to be used was found to be too costly and has been replaced by the sampling method.

The survey on 1 April is conducted to collect information on the number of pigs in some sample provinces.

2.2.3 Survey of labour force, machinery and cooperatives (as of 1 July)

The main objective of the survey is to collect information on the number of agricultural households and labour, machinery and equipment used in agriculture, development of agricultural cooperatives to monitor the implementation of plans, such as balance of labour force, transfer of agricultural labour structure, mechanization, irrigation and agricultural cooperativization. In line with the

objective, the content of the survey centres on number of agricultural households, agricultural population, number of agricultural labourers, machinery and equipment used mainly for agricultural production, and number of cooperatives operating according to the cooperative law. Number of agricultural farms was added in 1998.

During data collection, the General Statistics Office cooperates with the relevant line offices in the organization and conduct of the survey at local level. The degree of cooperation varies depending on each survey item, and is considered highest over the number-of-cooperatives item.

2.2.4 Forestry survey (for the non-state sector)

The objective of the forestry survey is to collect quantitative information on forestry production of the household and cooperative sectors in the course of one year. The forestry production of the year refers to the main following items: number of dispersal trees planted, area of concentrated afforestation in the household and cooperative sectors, production of wood and other forest products gathered and exploited by these sectors, forest care, forest protection and forest loss.

The survey date is 1 October. It used to be carried out yearly, but due to limited resources, has been conducted every two years since 1995. The survey method is a combination of sample survey and complete survey. There is close cooperation between the General Statistics office and the ministry of agriculture at the various levels in the conduct of the survey; the responsibilities of each agency at each level on data collection are clearly assigned; and there is very close cooperation, chiefly at central and provincial levels, in the release of information. There is, therefore, no difference in the forestry data released and used among the agencies at the various levels.

2.2.5 Fishery survey

The objective of the fishery survey is to gather quantitative data on the basic situation and production of fishery over one year. The survey is conducted on 1 October. The coverage and method of data collection are defined according to each type of survey items. The complete survey method is used to collect information on the basic situation (fishing craft, fishing gear, area of water surface used for fishery culture, number of cages and rafts for fishery culture, etc); the survey units are the commune and the ward. The sample survey method is used for data gathering on production of fishery capture and culture.

Owing to the diversity and complexity of fishery activities, the method and form of the fishery production survey have to be combined and coordinated in a flexible manner between main and supplemental methods and between the General Statistics Office and the Ministry of Fishery.

2.2.6 Other

For the state sector and cooperatives, statistical data are mainly collected through the regular reporting system. In reality, due to the coexistence of state and household economic systems and the diversity of data sources, data collection has to combine reporting and sampling methods to obtain adequate information.

Regarding the operations of enterprises and establishments, the General Statistics Office only collects information on quantity; other information, such as production and quality of operation, is collected and processed by the ministry of agriculture. The coordination of statistics on this matter between the ministry and the office is generally good. However, these enterprises and establishments are changing their management mechanisms, leading to many changes in their statistics system as well; in addition, their operations are complex, and this translates into many problems in data collection over the quantity, quality and timeliness of the data collected.

3 ORGANIZATIONAL PROBLEMS, ISSUES AND CONSTRAINTS, AND PROPOSED SOLUTIONS

3.1 The system of food and agriculture statistics in Viet Nam is centralized, under the management of the General Statistics Office, a government body. The biggest problem of the system is that personnel, workforce, budget and statistics activities are managed centrally, but activities are operated locally, in the various provinces and districts. The local statistical offices are, therefore, guided by local authorities on some aspects, which tends to run counter to the principle of independent and objective data collection. In fact, in order to satisfy the requirements of local leaders, food production was overestimated by statistical offices in several provinces, as shown by post-enumeration surveys made by the General Statistics Office. Thus, the 1996 figure of 3 million tons of food production became 1.5 million tons in 1997 and 300 000 tons in 1998. On the other hand, provincial information on the production of coffee, cashew nut and rubber was underestimated, so much so that export figures of these crops were higher than production figures in recent years. In 1998, the central office conducted a post-enumeration survey to assess the quality of the data on coffee as reported by the provincial offices and found that the data had been underreported as farms and households were afraid of paying too much tax. In the year 2000, the General Statistics Office plans to conduct a post-enumeration survey on rubber to adjust and correct the data on that crop.

The solution to this problem is to completely restructure the organization of the statistics system at the various levels. Coordination and cooperation between the statistics offices, the agricultural offices and the local authorities in survey activities should be emphasized.

3.2 In each commune, there is only one person engaged in statistical activities and that person also has secretariat duties. As most surveys are conducted in the communes, enumerators have to be recruited from district statistical offices or from commune offices. As a rule, the enumerators recruited from commune offices are not familiar with statistical work. This means that statistical practice is divorced from actual experience; in other words, the continuous operation of the statistical system at

commune and village levels based on accrued knowledge is not properly implemented. Systematic training of statisticians at commune level, including personnel engaged concurrently in sundry activities, is the solution to deal with this issue.

3.3 Statistical procedures. There is strong demand for information on food production from the government. Estimates of paddy production are required of the communes. At the same time, due to budget and personnel constraints, the General Statistics Office can only estimate the data at province level and, in some cases, at district level. In order to cope with this situation, many localities have had to conduct separate surveys or increase sample size. This has led to complications and difficulties in the collection of data on planted area and production of paddy and other crops. This has also multiplied the sources of information, making it difficult for users to assess the food and agriculture situation. At present, survey results have to be appraised and confirmed by the commune and the district. This may meet the needs of localities but the requirement of objective and independent data collection may also be compromised. In some cases, data processed by the lower level is very different from the data processed by higher levels, notably on food production. The solution for dealing with this problem is to implement strictly the constant requirement of statistical data – that data at one level be passed on to the level immediately above for processing.

3.4 The coexistence of two statistical systems (of the General Statistics Office and of sundry ministries) is also a source of problems and constraints. The General Statistics Office is in charge of collecting all data on food and agriculture, covering both the conditions of production (land, labour, machinery) and the results of production (yield and production of crops, livestock and poultry, gross output, efficiency of production, etc). The data collected by the office is the orthodox data of the government. The statistical departments or sections of the ministries of fishery and agriculture are assigned to gather information on the process of production such as progress of production, techniques, seed, intensive farming of crops and livestock, and operation of agricultural establishments and cooperatives. This division of tasks on the one hand promotes specialization, on the other hand tends to lead to confusion and duplication of efforts. To counteract this, both the office and the agriculture ministry carry regular exchanges of information at all administrative levels, but cooperation varies among localities. The achievements obtained, therefore, have been limited.

The solution for coping with this problem is to strengthen and perfect the statistical organization of the ministries of fishery and agriculture; moreover, a project of cooperation between the General Statistics Office and the two ministries on statistical activities should be formulated.

3.5 There are about 12 million production and service units engaged in agriculture, forestry or fishery. Their production scale is usually small and their operations are mixed and scattered, which makes the collection of basic data difficult. Besides, the organization and management of food and agriculture is not stable. State statistics are not well and strictly organized, especially at local level. There is considerable imbalance between the extremely strong request for information from government

agencies and the capacity of the system of food and agriculture statistics to satisfy their needs.

Improvement of statistical activities and a thorough shift from complete to sampling surveys are measures to deal with this problem.

3.6 The paucity of budgetary allocations for food and agriculture statistics is a big problem. VND6 billion[1] was allocated to agricultural, forestry and fishery surveys in 1999 and VND6.5 billion in the year 2000 – equivalent to US$430 000 and US$450 000 respectively. At the central level, DAFFS, as an administrative unit, operates without its own funds and is therefore unable to instruct and conduct actively all surveys in the country. Provincial and district statistics offices have to request additional funds from local authorities. Due to their dependence on local budgets, the operations of several statistics offices have been ruled by local leaders, and their independence and objectivity undermined.

Lack of funds makes it impossible for food and agriculture statistics offices to pay for sample units, as is done in some surveys of the General Statistics Office. Sample households, as a result, are reluctant to provide the information required, especially those that are designated for data collection over several years. Some yearly surveys have had to be carried only every other year. No fishery census has been conducted so far and the periodicity of the agriculture census has had to be extended. Altogether, this leads to a lack of basic information on land, labour, machinery and other factors of production and service operations.

The solution to this problem is to set up norms of expenses for all surveys. Allocation of funds to the main surveys should be emphasized. The other surveys, such as on forestry, fishery and cooperatives, should no longer be held yearly but once every five years.

3.7 At present, the organization of agricultural statistics is not empowered to collect and release information on the rural economy. This translates into a lack of information for policymakers. Collection by DAFFS of information on the rural economy along with food and agriculture statistics should be considered.

3.8 Although food and agriculture statistics is an important and complex activity, there has been no national project with international support in this field so far. This makes it difficult for DAFFS to raise the competence of statisticians and improve survey methods and data quality. Therefore, I would like to take this opportunity to call for the assistance and support of FAO and other international organizations in all fields of agriculture, forestry and fishery statistics, especially in the training of our staff, provision of equipment and availability of international experts.

In this context, the FAO initiative to hold a national seminar on food and agriculture statistics in Viet Nam is particularly appreciated. The seminar will no doubt be a success and contribute to the improvement of the statistics system in Viet Nam.

[1] VND stands for Viet Namese New Dong, the national currency

BASIC CONCEPT OF THE SYSTEM OF NATIONAL ACCOUNTS – AGRICULTURE STATISTICAL DATA USED TO COMPILE GDP AND SNA IN VIET NAM

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FOREWORD

After ten years, Viet Nam has implemented the framework of the System of National Accounts (SNA) to replace the old material product system. Its application has made important gains in the field of economic statistics.

Between 1989 and 1993, with technical assistance provided by the United Nations Statistical Office, SNA was introduced successfully in Viet Nam. Then the Asian Development Bank (ADB) provided technical assistance to improve our national accounts (strengthening methodology and basic information sources, improving relations between the General Statistics Office (GSO) and data users as well as with data-supply organizations at the central and local levels).

GSO will calculate integrated economic indicators and compile the national accounts quarterly, biyearly and annually for the whole country and for the regions, which needs to be presented in this seminar.

We will address three issues:

1. Concept and main contents of SNA;
2. Achievements of SNA implementation in Viet Nam; and
3. Shortcomings and solutions.

I WHAT IS SNA?

The System of National Accounts is a coherent, consistent and integrated set of macroeconomic accounts, tables and general models about the economy. It provides a comprehensive accounting framework within which economic data can be compiled and presented in a format that is designed for purposes of economic analysis, decision taking and policymaking, and for forecasting at macroeconomic level. It also provides a comprehensive and detailed record of the complex economic activities taking place within an economy and of the interaction between the different economic agents or groups of agents that takes place on markets and elsewhere.

II THE SYSTEM OF AGGREGATIVE ECONOMIC INDICATORS OF SNA

1. Gross Output – GO
2. Intermediate Consumption – IC
3. Value Added – VA
4. Gross Domestic Product – GDP
5. Gross National Income – GNI
6. National Income – NI
7. National Disposable Income – NDI
8. Savings – Sn
9. Final Consumption Expenditure – C
10. Gross Capital Formation – I
11. Export of Goods and Services – E
12. Import of Goods and Services – M
13. Property Income Receipts and Payment of Production – (EI)
14. Current Transfers – CuTr
15. Capital Transfers – CaTr

III COMPILABLE ECONOMIC ACCOUNTS

The following main economic accounts can be compiled:

1. Production Account
2. Income and Outlay Account
3. Capital and Financial Account
4. External Transaction Account
5. Input-Output Table (I/O)
6. Social Accounting Matrices (SAM)

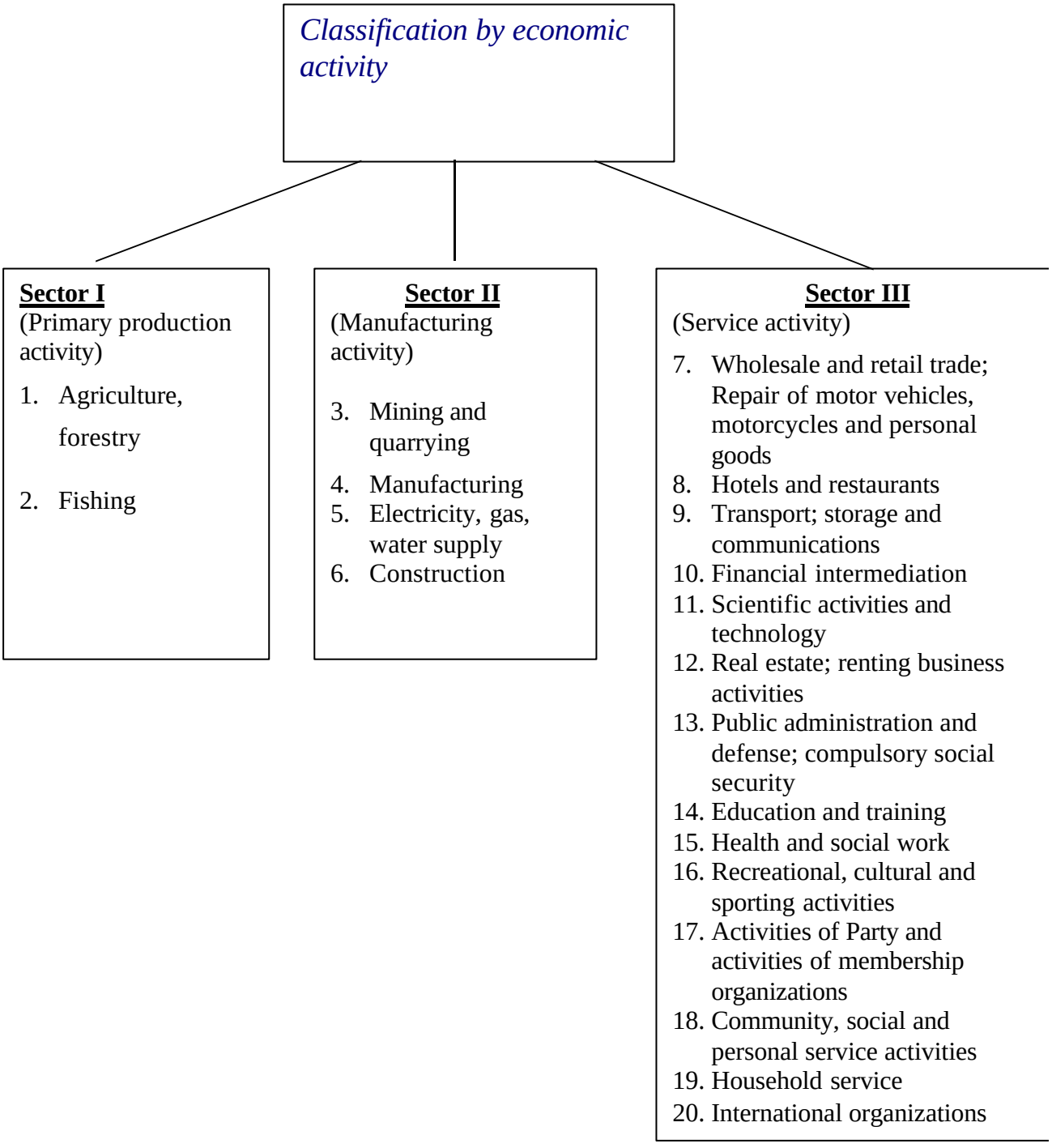
IV CONCEPT OF PRODUCTION BOUNDARY IN SNA

1. SNA is defined to cover all operations of people and agents that are resident organizations, individuals and households.
2. It uses their management activities together with the factors of national resources, land and capital to produce physical goods and services to meet the demand for production, household and government final consumption, for capital formation and for exports.
3. The goods and services produced are sold or not sold actually at markets.

V MAIN CLASSIFICATION

1. By institutional sector
2. By economic activity

Main classification of the Viet Namese economy



VI Classification by institutional sector

1. Government sector
2. Non-financial sector
3. Financial sector
4. Non-profit institutional sector
5. Household sector
6. Rest-of-the-world sector

In order to illustrate economic transactions among enterprises in an economy, SNA classifies enterprises by institutional sector. The basic criteria used in classifying enterprises by institutional sector are:

- Enterprises are economic entities, having legal rights, with independent accounting reports.
- Similar functions in business operation.
- Similar financial source for business operation.

VII METHODOLOGY FOR CALCULATING INTEGRATED INDICATORS OF SNA

1. Gross output sums up the gross output of all economic activities.
2. Intermediate consumption refers to the value of goods and services consumed in producing gross output. It sums up intermediate consumption of all economic activities, and consists of expenditure on physical goods and services.
3. Value added = Gross output – Intermediate consumption
4. Gross domestic product is calculated through three approaches:

(a) Production approach:

GDP = Value added by economic activity + Import duty

(b) Income approach: GDP consists of the following components:

- Compensation of employees
- Tax on production
- Consumption of fixed capital
- Operating surplus
- Mixed income

(c) Expenditure approach:

GDP = Final consumption + Gross capital formation +
Exports of goods and services – Imports of goods and services

- Final consumption = Private final consumption + Government final consumption
- Gross capital formation = Gross fixed capital + Inventory
- Exports = Exports of goods + Exports of services

- Imports = Imports of goods + Imports of services

The resulting estimates are compiled and presented in the following tabular formats:

5. Gross National Income (GNI) = GDP + Property income received from abroad – Property income paid to abroad

6. National Income (NI) = Gross national Income – Compensation of fixed capital

7. National Disposable Income (NDI) = National income + Current transfer receipts – Current transfer payment

8. Savings = National disposable income – Final consumption

VIII PRICE VALUATION OF INTEGRATED INDICATORS IN SNA AT CURRENT AND CONSTANT PRICES

1 Indicators at current prices

Indicators calculated from transaction of goods and services valued in prices of the current accounting period; there are three types of pricing mechanism:

a) Basic price = Total cost of production + Net profit from business operation
b) Producer price = Basic price + Tax on production
c) Purchaser price = Producer price + Trade and transport margins.

2 Indicators at constant prices

Indicators at constant prices are calculated by converting indicators valued in current prices relative to a chosen base year. Integrated indicators are usually calculated at constant prices in order to estimate the effect of prices, thus allowing studies on the changes in volume of production of goods and services.

3 Methodology of estimating GDP at constant prices

It is based on various information sources in order to apply suitable methods. In Viet Nam, the double deflation method is used to calculate the following formula:

(a) Production approach

GDP of reported year (current year) at constant price ($GDP_{1/0}$) = Gross output at constant price ($GO_{1/0}$) – Intermediate consumption at constant price ($IC_{1/0}$)
in which gross output is calculated in constant price by the following methods:

- Material product activities:

$GO_{1/0} = Q_1 \times P_0$

in which

Q_1: quantity of production in reported year

P_0 : price of products in base year (constant year)

- Material product activities without prices in base year (the price index cannot be calculated).

$$GO_{1/0} = GO_0 \times \frac{Q_1}{Q_0}$$

- Trade and service activities:

$$GO_{1/0} = \frac{GO_1}{I_P}$$

in which

I_P : price index of goods and services

- Activities of other services (government service, financial and credit activity, and other service activity)

$$GO_{1/0} = \frac{\text{Raw material Expense}}{I_P \text{ of raw material}} + \frac{\text{Fuel expense}}{I_P \text{ of fuel}} + \frac{\text{Electricity and water expense}}{I_P \text{ of electricity and water}} + \frac{\text{Service expense}}{I_P \text{ of service}} + \frac{\text{Compensation of employees and operating surplus}}{I_P}$$

(1)

Intermediate consumption at constant price: calculation follows the same procedure as above.

(b) GDP of reported year at constant price of base year can be calculated by expenditure approach

$GDP_{1/0}$ = Final $consumption_{1/0}$ + Gross capital $formation_{1/0}$ + ($Exports_{1/0}$ − $Imports_{1/0}$)

Break down the components of expenditure into groups of goods and services then divide the results by the corresponding price index.

(c) *At present*, countries in Asia agree to apply the system of producer price index for each economic activity and final consumer price index for goods and services, Price indices of exports and imports for calculating GDP are at constant price with 2000 as the base year.

4 Methodology for converting GDP in VND into GDP in US$

General formula:

$$\text{GDP of}_{\text{VND in US\$}} = \frac{\text{GDP}_{\text{in VND}}}{T_i}$$

T_i is the conversion rate of VND to US$. There are many methods for calculating T_i. The calculation methods have different results and are used for different study purposes. It is usually used by the exchange rate of State Bank and purchasing power parity.

IX ACHIEVEMENTS OF SNA IMPLEMENTATION IN VIET NAM

1 Calculating integrated indicators at current and constant prices.

2 The following major economic accounts are compiled with main items:
- Production account by five institutional sectors
- Income and outlay account by five institutional sectors
- Capital and financial account of economy
- External transaction account of economy.

3 Input-output tables for 1989 and 1996.

4 Sixty-one provinces in the whole country have calculated gross output, intermediate consumption, and value added by 20 economic activities and by type of ownership.

X METHODOLOGY AND INFORMATION SOURCES FOR CALCULATING GROSS OUTPUT, INTERMEDIATE INPUT, AND VALUE ADDED OF THE AGRICULTURE SECTOR AT CURRENT PRICES

1. Gross output, intermediate input and value added of agriculture are calculated for country, provinces and economic areas.
2. Gross output is calculated as follows:

Gross output = Output productivity in a year X Average price index of agricultural produce.

Yearly output productivity is calculated by a survey of agriculture statistics.

The average price index of agricultural produce is calculated through three approaches:

a. Survey on price of output productivity at local market
b. Survey on price of output productivity at market, minus 5%-7% trade and transport margin

c. By compiling the supply and using the balance for each output productivity of the agriculture sector.

From this, we have:

$$\text{Average price index of agricultural produce} = \frac{\text{Total use in value}}{\text{Total use in quantity}}$$

3. In order to calculate value added for the agriculture sector, we have to estimate average price index of agricultural produce following the c approach. So, we need information on quantity and price index of each consumption demand such as intermediate consumption (for cultivation, animal husbandry activities, foodstuff), consumption of household and export. In any case, gross input must be equal to gross output.

4. Intermediate input of the agriculture sector is calculated based on the sample survey of agriculture.

5. Value added is calculated as follows:

$$\text{Value added} = \text{Gross output} - \left(\text{Gross output} \times \frac{\text{intermediate input of sample}}{\text{gross output of sample}}\right)$$

XI METHODOLOGY AND INFORMATION SOURCES FOR CALCULATING GROSS OUTPUT, INTERMEDIATE INPUT AND VALUE ADDED OF THE AGRICULTURE SECTOR AT CONSTANT PRICE

1. Gross output = Output productivity in a year X Average price index of agricultural produce at 1994 prices.

The average price index of agricultural produce at 1994 prices is estimated as follows:

a. 1994 constant price table published by the General statistics Office for country and province.
b. Based on average prices of agricultural produce from the supply-and-use balance for output productivity.

The national accounts department uses the second approach.

2. $$\text{Intermediate input at constant price} = \text{Gross output at constant price} \times \frac{\text{Intermediate input at current price}}{\text{Gross output at current price}}$$

3. Value added at constant price = Gross output at constant price – Intermediate output at constant price.

XII SUMMARY OF THE INFORMATION NEEDED TO CALCULATE GROSS OUTPUT, INTERMEDIATE INPUT AND VALUE ADDED OF THE AGRICULTURE SECTOR

1. The information provided must be sufficient, opportune and accurate on output productivity of kind of cultivation and/or animal over quarter, half and full year.

2. Gross output at constant price of quarter, half and full year for the whole country must cover all 61 provinces. This requires unifying quantity and price.

3. Gross output at current price is calculated based on average price from the supply-and-use balance table of agriculture output productivity.

4. We need unity in scale and methodology of information such as statistics on other production of farmer, and estimates of crops, livestock, etc, over several years to calculate accumulation in the agriculture sector. We need to iron out problems on methodology such as:
   - Seed animals are output productivity of the farmers themselves. Are these seed animals calculated in intermediate input?
   - The farmers do agriculture services themselves. Are these agriculture services calculated in intermediate input?
   - Collecting information on structure of seed produced by the farmers, high-quality seed bought from the market. Each seed has a different price.
   - Do we allocate service charge in banking and insurance activities to intermediate input of the agriculture sector?

   We have to separate gross output, intermediate input and value added of the agriculture sector by institution of SNA.

Changing the benchmark year of gross output, intermediate consumption and value added from 1994 to 2000, we need to coordinate between SNA statistics, agriculture statistics and trade price statistics. We have to compile the average price table or price index following the principle that the average price for the whole country must be equal to the weighted average price of the 61 provinces or of the eight economic areas.

REVIEW OF DATA COLLECTION AND ANALYSIS IN CROP SURVEYS

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Statistics, General Statistics Office

Area, yield and production are the important indicators of crop statistics and they vary from season to season.

In Viet Nam, the household is taken as the basic production unit for statistics purposes. More than 90 percent of the country's agricultural output comes from farm households. For the household sector, it is impossible to adopt the periodic report system to collect information on crops; it is necessary to conduct sample surveys to gather data and information on area, yield and production by crop and by season.

There are many crops in Viet Nam and they are grown and harvested throughout the year. It is very important, therefore, to properly determine the agricultural calendar for each main crop countrywide to avoid overlapping in data collection phases and to make results comparable among localities and regions.

There are three seasons for paddy – spring, autumn and winter – even though in the Mekong Delta provinces, rice can be harvested up to five times a year. It is necessary to reduce the frequency of the cultivation to three times according to the guidance of the government. The other crops are grouped into spring crops and winter crops. The former are grown from January and harvested by June; the latter grown from July and harvested by December.

Statistics institutions carry out surveys to collect and assess data on area, yield and production by crop and by season. With the area variable, the complete survey is used for data collection. For yield and production, the sampling method is used at district, provincial and national levels.

I AREA SURVEY

The commune is the enumeration unit. Communes make statistics of area of crops planted twice a year (spring and winter). The statistics approach of the area is based on 1) reports by village heads on planted area by crop during the given period, 2) reports by commune farmers' associations and commune extension team on changes between plan and implementation of planting of crops in every village, and 3) reports from the previous season and documents on land use provided by land officers.

When all the information is ready, an interagency fieldwork mission (including statistics, finance, agriculture, land, and farmers' association) is formed to assess and verify area changes for each crop actually planted and the reasons for such changes. A final report on planted areas is drawn and sent to the District Statistics Office (DSO) for tabulation.

The result is forwarded to the Province Statistics Offices (PSO). The General Statistics Office (GSO) collates the reports from the province level.

II SURVEY ON CROP PRODUCTION AND YIELD

1 Paddy

During 1996-2000, the General Statistics Office has conducted a countrywide sampling survey on paddy production and yield. Data collection is performed through farmer interviews. This survey could be called an economic yield survey. It is carried in two phases.

1.1 Early forecasting

Early forecasting of paddy yield is made by all communes twice a season. First time is when majority of paddy rice are in completed bating stage, and second time is when paddy rice are in dough ripe stage. The data is forwarded to the District Statistics Office when majority of paddy rice is in completed booting. A district interoffice delegation (including statistics, finance, agriculture and plan) goes to leading communes to validate and review the forecasts of commune, leading to a recalculation of the yield forecast for the whole district. The yield forecast not only meets the timely requirements of the district leaders' economic management and planning but also serves as reference when the survey of households is carried out.

1.2 Actual survey

All districts apply one method of sampling approved and issued by the General Statistics Office. Based on the results of numerous pilot tests conducted on land size, number of communes in district, yield variance, survey budget, district statisticians, etc, the office makes a determination of sampling as follows: the domain of the survey is the district with one sample of three stages only; the sample unit is the household.

1.2.1 Sample size and allocation: the number of communes and households to be sampled is determined by the number of communes in the district and the size of the area planted according to the following rule:

Number of communes in district	Number of sample communes
30 or more	10
20 to 29	8
10 to 19	5
9 or less	3

Planted area of district	Number of sample households
10 000 ha or more	300
7 000 to 9 999 ha	250
4 000 to 6 999 ha	200
1 000 to 3 999 ha	150
999 or less	100

1.2.2 Selection of sample communes (first stage)

a) Listing of communes

In each district, the communes are sorted according to their location. Using the administrative map of the district, all communes in the district are sorted from north to south and from east to west. A table of the communes thus sorted is prepared, as shown below:

Commune	Area	Cumulative area
1	X1	X1
2	X2	X1+X2
3	X3	X1+X2+X3
4	X4	X1+X2+X3+X4
5	X5	X1+X2+X3+X4+X5
6	X6	X1+X2+X3+X4+X5+X6
7	X7	X1+X2+X3+X4+X5+X6+X7
etc	etc	etc
N	XN	X1+X2+X3+X4+X5+X6+X7+Xn

b) Selection of sample communes

Sample interval (I): the total planted area of the district is divided by the number of sample communes to arrive at I, the interval:

$$\text{Sample interval (I)} = \frac{\text{Total planted area of district}}{\text{Total sample commune (n)}}$$

The planted area of each commune is calculated to draw first as locator (L) through the formula:

$$\text{Planted area per commune (L)} = \frac{\text{Total planted area of district}}{\text{Total commune (N)}}$$

It is recommended that the commune with the area closest to L be chosen first. L, L+ I, L+2I, L+3I etc and L-I, L-2I, L-3I etc are also calculated to find the next sample communes. Communes in which the cumulative area comes closest to these figure should be included in the sample population of n.

1.2.3 Selection of sample villages (second stage)

In each sample commune, all villages are also sorted according to their location (same procedure as that applied to communes). Then the number of villages is divided by 3 to get the village interval (I2)

$$\text{Village interval (I2)} = \frac{\text{Total village of sample commune}}{3}$$

If total villages (n) is an odd number, the village with serial number (n+1)/2 is selected as the median village (n). And if n is even, the village with serial number n/2 is chosen as the median village (m). Then, village m-I2 and m+I2 are selected, along with m as the sample village.

1.2.4 Selection of sample households (third stage)

1.2.4.1 Selection of the enumeration area (EA). All enumeration areas from the population census of 1 April 1999 are considered as clusters of households for sample selection. Only one enumeration area with most of its households engaged in rice growing is selected. A list of the households is set up based on their dwellings being door to door.

1.2.4.2 Household interval (h): In each enumeration area, total household is divided by total sample households to get the household interval (h).

$$\text{Household Interval (h)} = \frac{\text{Total household}^{1} \text{ in EA}}{\text{Total sample household needs to be selected from EA}}$$

[1] Refers to paddy-producing households only

Households with serial number (n+1)/2 is selected if total household in EA (n) is an odd number. If n is even, the household with serial number n/2 is chosen as the median household. Then, household s-h, s-2h etc and s+h, s+2h, etc. are selected along with s as the sample household.

1.2.5 Estimation

Estimates are calculated at three levels: district, province and nation.

1.2.5.1 Estimation at district level: an estimate of yield rate is calculated as per the following formula:

$$Y_d = \frac{\sum_{h=1}^{n} P_h}{\sum_{h=1}^{n} A_h}$$

in which

Y_d : Estimate of yield rate for the district
P_h : Paddy production of sample household
A_h : Paddy planted area of sample household

n : Number of sample households in district

Estimation of production is based on the formula:

$Pd = Yd \times Ad$

in which

Pd: Paddy production of district
Ad: Paddy planted area of district.

1.2.5.2 Estimation for the province: the following formula is used to estimate yield rate of province:

$$Yp = \frac{\sum_{d=1}^{M} Pd}{\sum_{d=1}^{M} Ad}$$

in which

Yp: Yield estimate of province
m: Number of districts in province.

Estimation of production for the province is

$Pp = Yp \times Ap$

in which

Pp: Paddy production of the province
Ap: Paddy planted area of the province.

1.2.5.3 Estimation for the national level: at the national level, the estimate of the yield rate is calculated as follows:

$$Yn = \frac{\sum_{p=1}^{K} Pp}{\sum_{p=1}^{k} Ap}$$

in which

Yn: Yield estimate of nation
k: Number of provinces in Viet Nam (k = 61).

Estimation of production for the whole country is

$$Pn = Yn \times An$$

in which

Pn: Paddy production of the country
An: Paddy planted area of the country.

2 Other crops

2.1 The survey on yield and production of other crops (besides paddy) is conducted only in three leading communes (communes where most of the surveyed crop is planned).

2.2 With a specific crop, all communes in district are grouped into three strata according to yield of crop, high, middle and low. The commune with the biggest crop is selected as the sample commune.

2.3 In the sample commune, three villages are chosen at random and 10 sample households are picked out in each village to arrive at a total of 90 sample households per district.

2.4 The sample selection procedure is the same as that used in the paddy survey.

2.5 Yields calculated from the 90 sample households are used to present the average yield of the district. Crop production is the product of this yield and total area planted to the crop.

2.6 A certain sample is designed to correspond to a specific crop. However, the sample size may be expanded to reflect the local importance of a crop but should not exceed the figure of sample household determined in the paddy survey.

2.7 With tree crops (perennial crops) such as coffee, tea, rubber or longan, special attention should be paid to planted area and area under productivity.

A survey of yield and production of tree crop should concentrate on area under productivity and harvesting to arrive at the following:

Production harvested from the area under productivity	=	Yield from the area under productivity	x	Total area under productivity

Production from a newly planted area should be added to production harvested from the area under productivity to have total production. Thus the above three kinds of production should be reported in the same paper.

III ORGANIZATION AND IMPLEMENTATION OF THE SURVEY

1 Responsibilities of the General Statistics Office. A working group including a leader and support staff is set up to design and plan the survey. The group associates with the methodology department in the GSO and other agencies to discuss all relevant issues including concept, definition, design, sample size, method of survey and plan on training enumerators, data processing and instruments for the survey.

2 Responsibility of Provincial Statistics Office. During the implementation of the survey, the statisticians of the provincial statistics offices have to go to the district and commune level to make careful evaluation and examination of the sample selection to ensure that all samples are chosen according to design and procedure.

3 Responsibility of District Statistics Office. Statisticians of the district offices have to pay close attention to reviewing the data of all questionnaires. If any big problem is found, they must arrange for a repeat interview of the household or households involved.

4 Encouraging respondents to provide sound answers is essential. Local authorities must provide full support to the fieldwork of data collectors.

5 The sample unit system is stable for three seasons, after which sample allocation needs to be reviewed to improve representativeness, given possible changes due to such factors as seeds, irrigation and soil.

IV MAIN PROBLEMS AND CONSTRAINTS IN THE MANAGEMENT OF AGRICULTURAL STATISTICS

The management of crop statistics in Viet Nam still has many problems that need to be solved both in methodology and in practice.

- Many data on area, yield and production are needed for economic development, but not all can be collected for lack of funds and resources.

- All leaders at district and even commune levels are very much interested in agriculture, forestry and fishery data for use in their reports and management tasks. They ask the district statistics offices for data by commune and village. It is hard to get data for units out of sample population because the General Statistics Office conducts sample surveys only and estimation of surveys normally is done for the whole district level.

- Calendar year and agriculture year are different. This is why official data are always late, too late even for management activities. Early forecast is necessary, but how to do it?

- Underestimation also occurs during interviews to fill in questionnaires, as farmers want to pay as little taxes as possible. Encouragement given to heads of

household is necessarily done by the village head during sample checking. However, this involves extra costs.

The conduct of surveys in Viet Nam is based on our experience of the centralized economy. Advanced theory and experience of the market economy by other countries remain virtually unknown. How to plan and conduct a sample survey, how to use data, how to analyse it – all this we have to rethink and learn anew. So I think that this seminar is definitely useful for us at the General Statistics Office.

REVIEW OF STATISTICAL ACTIVITIES AT THE MINISTRY OF AGRICULTURE AND RURAL DEVELOPMENT

Mr Huynh Ly
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I ORGANIZATIONAL SYSTEM

1 Management organisational system

The Ministry of Agriculture and Rural Development was established in November 1995 by merging the previous ministries of agriculture and food industry, forestry, and irrigation.

At headquarters, some departments support and advise the minister on state management, while the Department of Planning and Projection manages and guides the statistical work of the ministry.

Among the business ventures that are directly under the ministry, there are 18 corporations, 36 companies and enterprises, project management boards, centres, institutes, universities and colleges.

At the provincial level, there are 61 departments of agricultural and rural development, 61 bureaus of forest guards, which are under the administration of provincial (or city) people's committees but under the ministry for economic and technical management.

At the district level, there are an agriculture division and a rural development division in each district.

The ministry is responsible for managing and controlling production activities related to agriculture, forestry and irrigation as well as some aspects of rural development.

There are various kinds of establishment in the production sector, such as state enterprises, joint-venture enterprises, cooperatives and farms. There are also enterprises involved in services and working for the public benefit.

All of the information on agriculture and rural development activities must be collected timely and comprehensively, and its quality has to be improved continuously.

2 Statistical organisational system

The Statistics Division of the ministry is in the Department of Planning and Projection. Eight persons man the division, each with a tremendous workload. Here is a rundown of their duties.

- The chief of the division is in general control and personally engages in forestry statistics, statistical survey, inventory, statistical report regime, training in professional statistics and checking the systematic balance of the statistical indicators.
- Deputy Chief is responsible for crop and animal husbandry statistics. He heads a group on food security information and is in charge of computer and database management.
- One person is in charge of producing the progressive report on agricultural production, released every 10 days; its brief covers agricultural forestry extension, programmes of freshwater and environmental hygiene, rural infrastructure, epidemic diseases and the food security situation in the North.
- One person is in charge of processing information on investment capital by flow and on investors of the establishments under the ministry as well as on agricultural industry.
- One person is in charge of processing the production indicators of enterprises under the ministry (public-benefit enterprises and advisory companies included) and of collating data on natural calamities such as floods and droughts. That person is also in charge of the bookcase and archives.
- One person is in charge of collating statistics on forestry, data on settled agriculture and fixed homes, data entry and the food security situation in the provinces of the South and the Highlands.
- One person is in charge of collating information on food and agriculture input of enterprises under the ministry, on price of sensitive commodities such as fertilizer, pesticide and sugarcane, and on the food security situation of the North Central Coast and South Central Coast provinces.
- The last person collects data on import and export of agricultural and forestry produce and on labour and income of all units under the ministry and its branches.

3 Main functions of the division

- To design, guide, collect, process, analyse and check statistical information and data on agricultural and rural development. Most of them are involving in quick action and information from other divisions under the ministry.

- To design, guide, collect, process, analyse and check statistical information and data on agricultural and rural development.

- To design and guide the implementation of information schemes related to agricultural and rural development at all levels.

- To collect, process and analyse statistical information in order to make recommendations in the management and evaluation of agricultural production; to prepare documents and data with a view to analysing plans; and to formulate and manage the databank of statistical information related to agriculture, resources under the ministry.

- To instruct local agencies on tabulation, calculation of indicators and methods of collecting and processing statistical data and information provided by the questionnaires.

- To provide ministry leaders and related agencies with briefs and monthly, quarterly and yearly reports on crops, on domestic markets of food, fertilizer and other sensitive commodities that are under the control of the ministry. The division also makes quick reports based on information on annual crop production. The data are compiled from the results of the surveys conducted by the Department of Agriculture, Forestry and Fishery Statistics of the General Statistics Office.

- To prepare reports on the production situation of industry and trade, on population and labour and others. These reports are submitted to the appropriate departments of the General Statistics Office.

- To conduct statistical surveys for the government or the ministry as the need arises.

- To coordinate with the Department of Accounting and Finance over the registration and management of all the estates of the ministry and other agencies.

Besides the gathering and processing of data that is carried out by of the Statistics Division, each of the other departments has personnel monitoring specific statistical data needed in its daily work.

The cooperatives and companies under the ministry also have personnel collecting, processing and analysing statistical data to satisfy their management requirements.

At province level, all planning department offices, Bureau of Forest Guard and related agencies have staff concurrently or non-concurrently involved in data collection and processing, tabulation and production of statistics reports.

At district level, the agriculture and rural development divisions arrange for their personnel to monitor statistical data in their fields of competence, periodically make tabulation and send the information to the planning department at province.

II THE SYSTEM OF STATISTICAL INDICATORS

The information collected and processed by the ministry is not only about agriculture and forestry, irrigation and rural development, but also about other primary branches of economic activities – industry, construction, trade, education, health services, etc.

In the context of this seminar, I would like to present an overview of the system of statistical indicators of agriculture and go into detail about the indicators derived from agriculture and forestry.

1 Information on progression

In order to monitor agricultural production, the ministry, with the assistance of FAO and the Italian government between 1994 and 1997, established a system of indicators for crop monitoring in all 61 provinces, with 152 sample districts countrywide.

Information on progression is disseminated every 10 days (it could be called a 10-day report). It consists of information on the market price of three kinds of rice by quality, good, average and bad, at three different sites. Information on agricultural production covers paddy rice production and cultivation and harvesting of other crops. Written comments are added to the figures.

Based on information from all regions, forecasts on weather and epidemic diseases, etc, every ten days the ministry holds a meeting with related agencies to review the situation of agricultural production in the last ten days and make a forecast for the next ten days.

Provinces are asked to make one report every ten days (on the fifth, fifteenth and twenty-fifth of every month) and the sample districts make monthly reports (see pattern tables and explanations attached in annex). The information is usually faxed to the Statistics Division.

Progression report: every 10 days

Province:..... Date:.....

a. Market information		At …….. market.	
Retail price of rice (d/kg)	1	2	3
Good quality			
Ordinary quality			
Bad quality			
Respondent			

b. Information on agricultural production As of ..... of.....,

Indicators	Measure unit	Target of this crop year	Implement of same period	Implement of this period

c. Comments

1/ Market: Comment about price compared with the last ten-day period (stable, increase, decrease). Cause of change; estimate of price for the next ten days and for coming days.

2/ Agricultural production – see annex

2 Monthly report

From the 15th to the 20th of every month, localities and enterprises managed by the ministry send reports on current implementation of value indicator, production by industry, i.e. agriculture, construction, etc. The value indicator is figured at constant price and current price.

3 Quarterly, biyearly, 9-monthly and annual reports

Every quarter indicators of production by value and kind are reported by local units and enterprises countrywide for review of production and service activities of the nation. The Statistic Division is responsible for collating these data and processing them by level, by economic area and by system of value indicators.

Besides preparing periodic reports as already mentioned, the division collects data and prepares urgent reports on sensitive items of agricultural production such as price of rice, sugarcane, sugar, fertilizer, pesticide and other inputs.

The division also coordinates with other agencies in the conduct of surveys and inventories, such as complete inventory of irrigation, of community forestry planting, inventory of forestry and forestry products, sample survey on rural industry, survey on sugarcane, and others. The indicators supplement the periodic reports. The division also works closely with the Department of Agriculture, Forestry and Fishery statistics of the General Statistics Office.

With the current indicator system and the supplements already mentioned, the Statistics Division endeavours to collect and process the data that reflect the activities of the ministry in order to answer government needs. The cooperation is performed at all levels to have accurate statistical estimation especially on food data.

III DIFFICULTIES

Statistical work faces difficulties due to significant changes in government management and administration, and to the increasing number of farms, joint ventures and shareholding companies in agricultural production and services.

The diversity of crop harvesting times countrywide, differences in weather conditions, long-term industrial plans and other factors make the estimation of indicators difficult.

Collecting and processing data on a quarterly basis is a big problem because harvesting times are difficult to identify. Statistics on crop production can be done by season. For indicator of value as VAT is clearly not being collected. Data on animal products and vegetables, which are harvested mostly by farmers, have yet to be gathered.

It has been five years since the ministry was established. Its management has known some changes, but the statistical organization has yet to be reinforced, the indicator system has not been suitably reformed, and statisticians at local level have not been retrained. This translates into insufficient and late information.

The Statistics Division is understaffed, under-skilled and under-equipped. This makes work difficult and, for all the pains that are taken, also results in insufficient and late information.

Agriculture joint ventures and shareholding companies do not send reports to the division. Farming activities are increasing in scale, intensity and in their contribution to agricultural production, yet indicators on rural development and public welfare companies cannot be collected regularly, but only through dynamic surveys with meagre budgets.

Faced with such difficulties, the Statistics Division has been assigned in the year 2000 to coordinate with other ministries and the relevant department of the General Statistics Office to study and design an indicator system to provide guidelines for data collectors.

Such is the situation of the Statistics Division of the Ministry of Agriculture and Rural Development of Viet Nam, which I have presented here in the spirit of experience sharing and with the hope of gleaning useful comments and suggestions.

Progress report: every 10 days.
List of main crops and animals

Crop/ Animal/ indicator	Measurement unit
1. Paddy	
a. Stages of production	
+ Land preparation	ha
+ Seedling	ha
+ Transplanting	ha
+ Cultivation	ha
+ Milk ripe	ha
+ Dough ripe	ha
+ Yellow ripe	ha
+ Full ripe	ha
+ Estimation of yield and production	100kg/ha, 000kg
+ Harvest	ha
+ Official data of yield and gross output	100kg/ha, 000kg
b. Natural calamity and insect	
+ Drought	ha
+ Waterlogged	ha
+ Insects (classification)	ha
2. Other cereals	
+ Maize	ha
+ Sweet potatoes	ha
+ Potatoes	ha
+ Cassava	ha
+ Other	ha
3. Annual industry crops	
+ Soybean	ha
+ Peanut	ha
+ Tobacco	ha
+ Sugar cane	ha
+ Cotton	ha
+ Jute	ha
+ Rush	ha
4. Food crops	ha
+ Vegetables	ha
+ Beans	ha
5. The annual 1st April and 1st October survey	
+ Buffalo	head
+ Cattle	head
+ Pig	head
+ Poultry	head
+ Product (liveweight meat, milk, egg...)	000kg, litre...

Monthly report on paddy production activity

Month.....year.....

Province:..... **District**:..... Code:					
A.1. No. of seasons in the month	Not (.....) One (.....) Two (.....)	A.2. The crop reported	Winter (....) Summer(..) Autumn(...)	B. Rice price at the local market	....VND/Kg Varieties:..... .....
C. Information on transplanting					
C.1. Month, year of transplanting			C.2. Month, year finishing transplanting		
C.3. Area planted				C.4 area replanted	
Planned.....ha Implemented..... ha		Irrigated areas (accumulate) Natural water (accumulate)		Once time.....ha Twice time.....ha	
D. Information on paddy					
D1. Situation of paddy crop on the field		Area (ha)	Compare with same crop of the last year		
			Better	Equal	Worse
a. After translation to before milk ripe b. Milk ripe c. Dough ripe d. Yellow ripe e. Full ripe					
D.2. The weather *(compare with the same month of last year)*					
a. Rain			Much(.....)	Equal(.....)	Less(.....)
b. Temperature			Cooler(.....)	Equal(.....)	Hotter(.....)
D.3. Total of area not harvested (accumulated)					
D.4. Natural calamity and insect in the month					
Kind of natural calamity and insects		Total (ha)	Affected level		
			Little (<10%)	Average	Much (>20%)
+ Waterlogged					
+ Drought					
+ Storm					
+ Insect					
Others calamity					
Total areas					

E. Inputs (for paddy only)

Classification	Situation of supplying in the month			Demand of next month		
	Much	Standard	Lack	Not	Standard	Much
Electricity						
Water						
Varieties						
Chemical fertiliser						
Other fertiliser						
Pesticide						

F. Information on harvest	
F1. Month/year began to harvest:	F2. Month/year finish harvesting
F3. Harvested areas	F4. Gross output

Date:..... Reporter:..... Approved by.....

REVIEW OF THE SURVEY ON LIVESTOCK AND POULTRY

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The General Statistics Office (GSO) has recently conducted a sample periodic survey to gather data on livestock and poultry on 1 October and 1 April. The procedure of data collection is as follows:

I SURVEY ORGANIZATION AND IMPLEMENTATION

The responsibility of organizing and implementing the survey is assigned to all three levels of the statistics system, namely GSO at the top and, further down, the provincial statistics offices (PSOs) and the district statistics offices (DSOs).

1 Responsibilities of GSO

- Plan and design the survey
- Organize the training course for statisticians of PSOs
- Carry on fieldwork supervision and conduct post-enumeration surveys when necessary
- Conduct a data review of PSOs
- Establish the data processing, make the final report and release the data

2 Responsibilities of PSOs

- Refine survey planning
- Survey cost estimation and supervise the printing of survey forms
- Organize the training course for statisticians of DSOs
- Outline the sample review to be performed by DSOs
- Guide and supervise the survey activities of DSOs
- Conduct a data review of DSOs
- Collect all secondary data on other animal – horse, bee, dairy cow, milk, cocoonery – from the annual reports of other institutions.
- Conduct post-enumeration surveys in three districts whenever necessary
- Make tabulation and report to GSO after data checking

3 Responsibilities of DSOs

- Make sample allocation (select sample communes, villages) then forward the selection to PSOs for approval
- Conduct the actual fieldwork of gathering data from sample households

- Finalize data estimation at district level

II SURVEY COVERAGE

The coverage and scope of the 1 October and 1 April surveys differ.

1 Survey on 1 October

This survey is conducted in each of the 61 provinces and the following items are involved:

Survey on animal population (survey on quantity):

	Total	Of which
a	Buffalo	Draft-power buffalo
b	Cattle	Draft-power cattle
c	Dairy cow	
d	Pig	Sow
		Porker[2]
e	Poultry	Chicken
		Duck and the likes
		Swan, Goose
f	Horse	
g	Goat	
h	Bee	
i	Sheep	
j	Stag	

Survey on production

a	Live weight of buffalo slaughtered
b	Live weight of cattle slaughtered
c	Live weight of pig slaughtered
d	Live weight of poultry slaughtered
e	Volume of milk
f	Volume of honey
g	Cocoonery

2 Survey on 1 April

Only two items – number of pigs and number of sows – are covered in the survey, which is conducted in the 14 sample provinces that are representative of the seven regions of the country.

[2] A pig fed to be slaughtered and used for pork

III SURVEY METHODS

1 Method of survey on 1 October

Three groups of items are surveyed: number of livestock (buffalo, cattle and pig); number of poultry and animal product; and other animal.

1.1 Survey on number of livestock

The survey is conducted in all districts. Two-stage sampling is adopted.

- Primary stage (selection of sample communes). Stratification of sampling is applied. The district is divided into three or five strata according to its economic situation and breeding manner of local inhabitants. One sample commune from each stratum is selected to reach a total of three or five communes. The commune is considered as a sample of stratum; it should meet two conditions: 1) the number of pigs per household is closest to the number of pigs per household of the stratum and has ordinary economy as the condition of the most; and 2) being a sample commune of the last survey with the capable data collectors.

- Secondary stage (selection of sample villages and households). Only one village from each sample commune is selected to survey. The characteristic of the sample village chosen is likely to be the same as that of the sample commune. All households in the village are involved in the survey

- Calculation and final estimation. The sample population of villages selected as per the above rule is considered the sampling of district. The annual growth rate (R), then, is figured out according to the result of the last 1-October survey. The final estimation of district is generally computed as follows:

$$\text{Annual growth rate of the surveyed variable (R)} = \frac{\text{Value of variable gained from the sample units}}{\text{Value of the same variable in the last survey}}$$

Estimation of district (E)

$$E = R \times P$$

in which

P : the last estimation of the given variable

for example: with buffalo of district A.

1998: Final estimation was 950 heads (as survey 1st Oct 1998) while result from the sample is 50 heads

1999: from survey 1st Oct 1999 at the same sample we have 55 heads. R was calculated at 55/50=1.1 or 110%. So final estimation of 1999 is 950 x 1.1 =1045 heads.

This formula is used for calculating all surveyed variables (items) of every year.

1.2 Survey on number of poultry and animal product

The indicator of this survey is estimated for the whole province. The following are some of the main items surveyed:

a	Live weight and number of head of buffalo slaughtered
b	Live weight and number of head of cattle slaughtered
c	Live weight and number of pigs slaughtered
d	Live weight of poultry slaughtered
e	Volume of eggs produced

Three or five sample villages from the samples of the survey on the number of livestock are selected. They are considered as sample of province. Each is representative of one ecological region of the province. All households in the village are involved in the survey.

Regarding poultry, the following are some of the main items surveyed:

	Total	of which
a	Chicken	Egg-laying hen
b	Duck, goose and the like	Egg-laying
c	Egg	
d	Live weight and number of poultry slaughtered	

The following are some of the main formulas to produce the final estimation for the whole province, taking the 1996 survey as example:

Number of buffalo, cattle, pig and poultry slaughtered	=	Total buffalo, cow, pig and poultry on 01/10/96	x	Proportion of buffalo, cow, pig and poultry slaughtered in the sample
Live weight of buffalo, cow, pig and poultry slaughtered	=	Number of buffalo, cow, pig and poultry slaughtered	x	Average weight per head of buffalo, cow, pig and poultry slaughtered from the sample
Total chicken, duck and goose	=	Total chicken, duck, goose 01/10/95	x	Growth rate of the sample (R)

Total egg produced	=	Number of females (egg laying) 01/10/96	x	Eggs produced per egg laying of the sample

1.3 Survey on other animal husbandry

Data on animal husbandry are secondary; they are collected from reports of the relevant provincial agencies, such as agricultural department offices, farmers' associations or bee-keeping companies.

2 Method of survey on 1 April

This survey is executed in 14 provinces with only two indicators – number of pigs and number of sows. The sample of the survey of 1 October is used.

Estimation: Growth rate of the sample (r) is calculated as:

$$r = \frac{\text{Head number on 1 April of the sample}}{\text{Head number on 1 Oct last year of the same sample}}$$

Final estimation (P) $P = r \times Ps$

in which P: total pig of district on 1 April to be estimated,
Ps: total pig on 1 Oct last year,
r: growth rate of pig of the sample (1 April this year/1 Oct last year).

3 Post-enumeration surveys and stabilisation

3.1 Post-enumeration surveys are carried out in two or three districts for each province for the 1 October survey only.

3.2 Stabilisation: in line with the GSO manual, the sample is stable for some years. It is only reselected when there are big variations of animal husbandry.

IV CONSTRAINTS AND SOLUTIONS

1 Survey scope

As mentioned above, the survey includes most of the main indicators on quantity and product, livestock as well as poultry, the majority and the minors. However, some other animals that play a certain role in the daily life of consumers are still excluded from the

survey, such as pigeon, quail for egg, snake, python, Trionychid turtle, frog and others. They should be added and considered as meaningful items in the coming survey.

Improving the reproductive capability of animals, especially domestic livestock, is an aim of animal researchers and economists. Therefore, information on the female of the species should be investigated and separated from the total.

2 Survey method

The method for livestock and poultry surveys issued by the General Statistics Office and adopted by the provincial statistics offices has saved much budget and the information gained has reflected the situation of animal husbandry at local level.

In respect of the dominant and popular breeding, application of sampling is satisfactory due to the accuracy of its final estimation.

a) Pig breeding and poultry breeding are popular and very important in Viet Nam. As of 1 October 1999, the country had 18.9 million pigs and 179 million poultry[3]. More than 90 percent of the households are keeping poultry. It is proved that the sampling applied in livestock and poultry surveys is appropriate due to insignificant sampling errors.

b) Livestock breeding (buffalo and cattle) is relatively developed. Also as of 1 October 1999, total head of buffalo and cattle were 2 956 million and 4 046 million respectively. Every three or four households had one buffalo and one head of cattle on average. This means that more than 70 percent of the households were without them; it also means that the variable of buffalo or cattle among households is significant. This may easily result in errors during sample selection. This survey has been conducted by some provincial statistics offices such as in Nam Dinh, Ha Nam, Ha Tay, Hai Duong, Can Tho and Thanh Hoa among others.

c) Other animal breeding. The data on this area are culled from reports of institutions other than statistics. Their accuracy remains a source of enduring headaches. Quantities are small. On 1 October 1999 the country had 470 800 sheep, 149 600 goats and 12 800 stags. These animals are concentrated in certain areas because of environmental factors or other circumstances – for example, goats in mountainous rocky areas, horses in mountainous areas, bees in fruit areas, etc. Therefore data survey of these species is easy. Ad hoc procedures are applied. Only the area where a surveyed species is fed is considered as the enumeration area and all households there are interviewed. Such surveys cost little and need not be frequent.

d) Sample for pig survey. Sampling errors may be significant because the number of sample villages is not high enough or sample allocation is not wide enough (three or

[3] Understood as domestic poultry such as chicken, duck, goose and the like, kept by farming households

five sample villages in each district). Moreover, when there are 100 to 400 households in a village, fieldwork is a burden for data collectors, and costly. Sampling errors could be less significant if the number of sample villages was higher than usual and the number of sample households smaller but with a broader allocation and more rigorous selection. The following are some suggestions to get over this problem:

- In the sample commune, three villages are selected instead of one; each sample village chooses 20 sample households instead of all households, as is currently the case. The approach to village selection is to be similar to the one used in paddy surveys.

- Animal husbandry by – presumably large-scale – farms is developing rapidly. Due to their growing importance, these farms should be investigated but they are not on the list (sample frame) for the selection of ordinary households. The result obtained from the farms should be added to the final estimation derived from the samples to arrive at the final total. For example, in commune M, the number of pigs from farms is 1 500, the estimation from the samples (ordinary households) is 3 150, so, the total for the commune should be 1 500 + 3 150 = 4 650 pigs.

- In keeping with the condition of each species' breeding manner and the need for local leaders to apply the appropriate survey approach in each area:
  - With regard to the survey on quantity of buffalo and cattle and on quantity and production of other animals, complete enumeration should be applied.
  - With regard to the survey on quantity of poultry and pigs, sample enumeration should be applied.
  - With regard to the survey on production of animals, sample enumeration should be applied, and the option of any sample procedure should be performed in line with local circumstances.

REVIEW OF DATA COLLECTION AND ANALYSIS IN FISHERY SURVEYS

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I ROLE OF THE FISHERY SECTOR

Viet Nam's fishery sector, which has much potential for growth, plays a very important role in the economy. Twenty-eight of the 61 provinces of the country are located along the country's 3 260 kilometres of coastline. Viet Nam has one million km^2 of economic-privilege zone and more than one million hectares of water surface (including rivers, ponds and lakes) for aquaculture and fishing.

Owing to its economic importance, fishery was upgraded from secondary to primary branch of economic activity in October 1993.

In recent years, the fishery sector (including both aquaculture and capture) has grown quickly. In 1999, gross output was two million tons, an increase of 12 percent over the previous year, and export of fishery products amounted to US$950 million.

However, the operation of fishery statistics in Viet Nam is not adequate to the role of fishery activities in the national economy. It is, therefore, necessary to study and improve fishery statistics in both content and methodology.

II CURRENT SITUATION OF FISHERY STATISTICS

Up to now, there have been two systems of fishery information in Viet Nam, the state statistics system for fishery managed by the General Statistics Office and the statistics system of the Ministry of Fishery.

1 The state statistics system

a) At central level, four statistics departments of GSO are responsible for collecting fishery data.

(1) The Department of Agriculture, Forestry and Fishery Statistics is assigned to collect data on aquaculture and capture fishery, including the following statistical indicators: number of fishing boats, number of fishermen, water surface areas used for culture, fishery production by culture and capture,

gross output of fishery, intermediate consumption and value added of fishery. Thus, the department is responsible for collecting, processing and releasing fishery information on conditions of production as well as the results obtained from the production process.

(2) The Department of Industry Statistics is responsible for collecting information on fishery processing.

(3) The Department of Trade and Price Statistics is assigned to collect information relating to fishery consumption, including domestic and export consumption.

(4) The Department of Construction, Transport and Communication Statistics is responsible for collecting information on investment in the fishery sector.

In order to fulfil their mandates, these departments, chiefly the Department of Agriculture, Forestry and Fishery Statistics, have set up statistics reporting systems and prepare guidance and instructions on conducting sample surveys for the provincial statistics offices.

Fishery data collected, processed and released by the General Statistics Office are the legal source of information on the fishery sector of Viet Nam. They are widely used inside and outside the country.

b) At provincial level, the provincial statistics office (there are 61 of these, one per province) is responsible for collecting, processing and releasing fishery statistics in the province. Each office has several sections, e.g. Agriculture, Forestry and Fishery Statistics, Industry Statistics, Trade and Price Statistics, Construction, Transport and Communication Statistics, etc. The Agriculture, Forestry and Fishery Statistics section is responsible for collecting, processing and releasing fishery statistics.

The provincial statistics offices have set up a statistical system at district and commune levels: there is a statistical section in each district, and in the commune one employee is responsible for statistical and secretariat work.

2 The statistics system of the Ministry of Fishery

a) At central level. Before 1990, the Ministry of Fishery had a statistics section, which employed about ten people. Since then, personnel have been reduced. At present, only two statisticians in the Department of Planning and Investment are assigned to compile information on the fishery sector.

b) At provincial level. Only 16 provincial fishery offices in as many fishery provinces[1] have been established so far. Each has 15 to 20 staffs, one of whom is assigned to compile information on fishery. In the remaining provinces, where there are no separate provincial fishery offices, fishery activities are managed and monitored by the provincial offices of the agriculture ministry. There is no one assigned full-time to fishery statistics.

With such an organization, the fishery data compiled by the statistics system of the fishery ministry are mainly used for management purposes, formulation of plans and projections of the ministry. The data are mainly culled from quarterly reports of some exporting and processing fishery companies. The information compiled from these companies is used to assess aquaculture, capture fishery, fishery processing and fishery export activities. It is therefore impossible for the ministry to compile fishery statistics with a breakdown by province. The quality of the data compiled is generally poor. Information on fishery gear and fishing craft is mainly collected from the registered data of Protecting Fishery Resources Department. Those data are inaccurate because the actual operation of this equipment is not strictly monitored and many small fishing boats are not registered. Additionally, the fishery ministry is only interested in data on fishery product processing and fishery export activities.

III FISHERY STATISTICS AT THE DEPARTMENT OF AGRICULTURE, FORESTRY AND FISHERY STATISTICS, GSO

According to the present Industry Classification of economic activities, since 1995 the Department of Agriculture, Forestry and Fishery Statistics has been assigned to collect information in the following fields: capture fishery, aquaculture and services related to fishery, with the following breakdown:

- Culturing fish, shrimp and other fishery animals in all types of water (saltwater, brackish water and freshwater) and in all kinds of water surface (ponds, rivers, lakes, streams and areas of seacoast used for aquaculture).
- Growing of algae, seaweeds and other aquatic plants used for making food.
- Capturing fish and molluscs in all types of water and in all kinds of water surfaces.
- Capturing other fishery animals such as turtle, trionychid turtle and shellfish.
- Gathering and collecting sea products such as pearls, swallows' nests, sponges or sea cucumbers.
- Processing fishery products on boats.
- Services related to aquaculture and capture fishery.

In short, the department is only responsible for collecting information on fishery production activities. Other activities such as processing, sale and consumption of fishery products as well as investment outlay in the fishery sector are excluded.

[1] Refers to provinces located in the coastal area

At the General Statistics Office, data on fishery are collected separately for state and non-state sectors. State-sector data are gathered through the regular reporting system. All fishery establishments of this sector annually send completed forms to the central or provincial statistics offices. Non-state-sector data are collected by conducting an annual survey.

Since 1996, the fishery survey of the non-state sector has been conducted every 1 January in all provinces in order to collect quantitative information on the fundamental situation of fishery production activities during the year.

Based on results of the survey, the provincial statistics offices have to send to the department the six following reports (the last two since 1999):

- Report on aquaculture.
- Report on production of the fishery sector.
- Report on gross output of the fishery sector.
- Report on intermediate consumption and value added of the fishery sector.
- Report on the fundamental situation of fishery production activities.
- Report on the situation of offshore capture fishery.

IV METHODOLOGY OF THE ANNUAL FISHERY SURVEY

The main task of fishery statistics is to reflect fishery activities including culture, capture and fishery-related services. Thus, the content of the annual fishery survey consists of two parts:

- The fundamental condition of the fishery sector, such as number of fishery establishments, number of fishermen, means of production (fishing craft, implements, fishing gear, fishery resource by type of water surface, water areas under culture, etc) and other conditions such as fishing port, landing place, service system, etc.

- The second part reflects results obtained from fishery production activities during the year, such as total production and gross output of capture fishery and aquaculture classified by economic sector and by type of water surface (saltwater, brackish water and freshwater).

Different survey methods are applied to collect these contents.

1 Collecting information on the fundamental condition of the fishery sector

Complete enumeration is applied for collecting information on the fundamental condition of the fishery sector. The survey is conducted in all fishery communes, towns

and wards[2]. Data are collected directly from fishery establishments or indirectly from local authorities. The survey items consist of number of fishermen, number and capacity of fishing boats, number of fishing gear, area of water surface used for fishery culture, etc. This indicator is necessary to make an estimation of fishery production.

The data are directly collected and processed by the district statistics offices and the result is sent to the provincial statistics offices.

As no fishery census has ever been conducted in Viet Nam, there are no baseline data to assess the reliability of data collected in the survey.

2 Collecting information on fishery production

Due to the lack of resources and complexity of collecting data on fishery production, conducting a sample survey is a sound method to obtain the necessary information.

According to the instructions for non-state fishery surveys (138/TCTK-NN of 20 March 1996), several average indicators such as fishery production per fisherman, per fishing boat (or per horsepower) and per aquaculture area unit are calculated based on data collected from the sample survey. These average indicators are then used to estimate fishery production.

2.1 Stratification

The district is the domain of the survey, meaning that estimates from the survey are calculated on a district basis. All communes and towns of the district are classified into two or three strata (culture, capture, other) according to natural conditions, level of fishery development, type of fishery and data of the 1994 rural and agricultural census.

- Capture fishery stratum. This stratum includes communes (towns, wards) with most households and workers engaged in capture fishery. The communes are normally located in coastal areas or areas near big lakes and rivers where fishery resources are available.

- Aquaculture stratum. This stratum consists of communes having large water surfaces (saltwater, brackish water, freshwater) used for fishery culture in large-scale, concentrated operations employing a number of skilled workers. The fishery products are mainly for commercial use. For localities specializing in culturing valuable fishery animals, communes can be classified by type of culture, such as shrimp-culture stratum, mollusc-culture stratum, etc.

[2] Refers to the communes, town and wards having households and organizations engaged in fishery

- Other stratum. For communes not classified in the above strata, where capture and culture fishery activities are generally small-scale and dispersed.

2.2 Sample selection

A two-stage stratified sampling is adopted. The primary sampling unit is the commune or the town and the ultimate sampling unit is the fishery establishment or the fishery household.

2.2.1 Selection of the first-stage sample: selecting sample communes or towns. In each stratum, communes are ranked and numbered according to their order in the administrative list of communes of the district. Then two or three sample communes are selected using linear systematic sampling through a random start and sampling interval. After choosing the first commune (for example, No. M), the second and the third communes are numbered M+K and M+2K respectively. The sampling interval is calculated by the formula:

$$K = \frac{N}{n}$$

In which

N: the number of communes in the stratum

n: the number of selected communes

Several random starts should be made to choose the best sample communes.

2.2.2 Selection of the second-stage sample: Selecting sample establishments or households.

(1) For large-scale fishery establishments such as cooperatives, private establishments and joint ventures, all are selected.

(2) For small fishery establishments such as individual households and other organizations, sample units are selected by linear systematic sampling. The procedure of sample selection is as follows:

a) All households or organizations engaging in capture or culture fishery are listed by village. They are numbered from 1 to n.

b) Fifteen to twenty households or organizations are chosen starting at random and calculating the sampling interval as applied in the selection of sample communes.

2.3 Method of data collection

The enumerator interviews the head of the establishment or organization about its actual situation. When interviewing small-scale fishery units, enumerators must focus their questions on the situation during the year under survey.

2.4 Data aggregation and estimation

2.4.1 Calculation

Data collected is aggregated and calculated as follows:

- Aggregation of data collected through complete enumeration for the entire district and for each stratum.
- Aggregation of survey items collected from sample units for each stratum.
- Mean of surveyed items estimated for each region.
- Calculation of some average indicators for each stratum as follows:

(1) Culture production by type of fishery products per unit (m^2 or ha) of water surface used for fishery culture.

(2) Capture fishery production by type of fishery product per fisherman, per fishing boat (or per horsepower).

2.4.2 Estimation

The estimation is made for each fishery product in each stratum using the following general formula

$$Ei = Pi \times Ti$$

in which

Ei : the estimation of item X in the first stratum

Pi : the average yield rate of item X in the first stratum (Pi is calculated from sample units).

Ti : the total number of item X in the first stratum.

Example:

Production of shrimp culture in stratum	=	Production of shrimp culture per m^2 in the stratum	x	Shrimp aquaculture area in the stratum (m^2)
Production of fish capture in stratum	=	Production of fish capture per fisherman in the stratum	x	Total number of fishermen in the stratum

2.4.3 Making aggregation for entire district and province

- *For the district*: The total production of a fishery product in one district is calculated as follows:
- Aggregation of all strata in that district to figure out the production in the non-state sector.
- Aggregation of all state units (enterprises, establishments, farms, etc)

- Total production of a fishery product for the entire district territory = (a) + (b)
- *For the province:* The total production of a fishery product in the entire provincial territory will be calculated by adding up the production of that product of every district in the province.

Data collected and aggregated should be carefully reviewed at the different levels.

Based on general instructions set by the central office, the provincial statistics offices prepare their own instructions for the districts. The instructions should be detailed and suitable to the actual situation of each area. When preparing and conducting the survey, the provincial statistics offices must cooperate closely with provincial fishery offices (or provincial agriculture and rural development offices) to ensure consistence of coverage, contents and results of the survey.

V PROBLEMS AND SOLUTIONS

Fishery activities are various and multiform. The diversity of fishery activities manifests itself in aquaculture and capture, fishery products and fishing gear, production scale and technical level, and in the various characteristics of localities.

Fishery activities are performed throughout the country. They consist of all types: from scattered forms to concentrated forms; from small-scale to large-scale; from self-supply to commodity production; from low level to advanced technical level. Such characteristics generate difficulties and obstacles for statistics activities, affecting data collection and data quality. The reliability of fishery data, therefore, is low. There is a big difference in data on fishery products released by the General Statistics Office and those compiled by the Ministry of Fishery. The productivity of fishery culture is quite different among and within regions. Large yearly fluctuations of the fishery annual growth rate in a province are hard to explain. Besides, data on the basic situation of the fishery sector is generally inadequate and inaccurate.

There are several reasons for all this. One is that the current survey methodology, especially the sample survey for collecting fishery statistics, is not quite proper in practice. Capture fishery is usually concentrated in small areas (commune, ward) and involves much fishing gear and fishing craft of many types and sundry capacity. It also depends very much on the season and the place. Therefore, the sample size of 15 to 20 households in each sample commune is too small to represent all types of fishery capture activities practiced in the commune.

Experience gained through field observation in some provinces suggests that they are still in the process of testing and improving data collection methods. However, not much effort is given to fishery statistics in several provinces, which leads to difficulties in statistics collection there and in compilation at the higher levels.

In order to overcome these problems, we propose the following:

1) A fishery census should be conducted as soon as possible to collect basic information on the fishery sector that could be used as sampling frame for annual fishery surveys. Furthermore, fishery censuses should be carried out every five or ten years to reassess the fundamental situation and infrastructure of the sector.
2) The financial and technical assistance and support of other countries and international organizations would be of great benefit to the General Statistics Office in conducting a fishery census and improving the annual fishery survey, creating favourable conditions to integrate regional and international statistics.
3) As long as a fishery census has not been conducted, the improvement of survey methods could be implemented in the following directions:
   - Concentrating on collecting fishery data in provinces where fishery activities are on a large scale for commercial purposes, especially provinces located in coastal areas and in the Mekong Delta. In order to obtain better-quality data, more funds should be allocated to these provinces and the sample size increased. For non-fishery provinces located in highland and mountainous areas where fishery activities are carried out on a small scale for local consumption, the sample size should be much reduced. Consequently, the estimation should be calculated at provincial level.
   - Cooperation between the General Statistics Office and the Ministry of Fishery should be reinforced to get unanimous opinions on survey items and the survey method. This would help mobilize funds and human resources to conduct fishery surveys. The fishery data released by the provincial statistics and fishery offices would thus be consistent.
4) The survey on the fundamental situation and infrastructure of the fishery sector should be conducted every 1 October (in combination with the livestock survey), because fishery activities are rather stable at that time of year. Data collected by the survey could be used for the estimation in the survey of fishery production. The survey on fishery production should be conducted every 1 November (or 1 December) in order to release timely information to the users.

REVIEW OF STATISTICAL ACTIVITIES AT THE MINISTRY OF FISHERY

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I ORGANIZATION AND COLLECTION OF FISHERY STATISTICAL DATA AT THE MINISTRY OF FISHERY

1 Organization of statistics

1.1 At central level

1959-1965: The Statistics Division of the Ministry of Fishery has four statisticians and is under the Department of Planning and Statistics.

1965-1974: The division now has eight statisticians.

1974-1978: The division, still with eight statisticians, is under the Department of Accounts, Statistics and Price.

1978-1986: Now with a staff of 12 statisticians, the division is a self-reliant unit directly under the minister.

1986-1997: Down to three statisticians, the division is a small unit in the Department of Planning and Investment.

Since 1997: Still under the same department, the Statistics Division is all of two statisticians strong.

When the fishery industry was established forty years ago, it had minimal facilities and precious little technology and its output was negligible. Since then, it has developed increasingly fast. As of 1999, the gross output of fishery was 1 834 950 tons and there were 97 500 fishing vessels with 1 880 000 HP (horse power). The potential water surface for aquaculture was 1 400 ha**,** excluding 800 000 ha of tidal flat and reservoir areas, and the fishery sector altogether employed 550 000 persons. However, there were just two persons involved in statistics at the Ministry of Fishery.

1.2 At province level and below

Sixteen of the 61 provinces of the country have their own provincial fishery offices. In the other provinces, the obligation of fishery statistics is assigned to the provincial agriculture and rural development offices.

a. Organization of fishery statistics in the 16 provinces with fishery offices

- From 1959 to 1986, each provincial fishery office had two persons engaged in statistical work. Since 1986, there is only one.

- Ever since 1959, each district fishery office has only had one part-time statistician, working under the district planning office. There has yet to be any training in statistics for those engaged in statistical work at both district and province levels.

- At commune level, there is still no one responsible for collecting fishery statistics data.

b. Organization of fishery statistics in the other provinces

No one is responsible for fishery statistics. Therefore, the Statistics Division only receives the general reports on agriculture, forestry and fishery from the provincial agriculture and rural development offices, rather than specific statistics on fishery.

1.3 Other institutions under the Ministry of Fishery

- ***Production and business sector:*** In each general company, corporation, etc, a member of the planning section works part-time as a statistician[4].

- ***Administrative section:*** For matters of scientific research and training by the ministry, an administrative recorder or registrar is responsible for compiling statistics and forwarding the findings to the Ministry of Fishery with a copy to the Statistics Division.

2 Task of annual statistics of the division

2.1 Data gathering from periodic reports

a. On production
   Aquaculture, including establishments (aquaculture farms, breed stations)
   Catches from saltwater, freshwater and brackish water.
b. On processing
   For export by country of destination
   For domestic consumption
c. On fishery services

[4] Refers to a person working in both planning and statistics

2.2 Statistics surveys

Statistics surveys are assigned to research institutes to carry out. The statisticians of the division are not allowed to participate in the surveys. The division merely collects data from their results to make its own reports. Here are some reports of recent executions:

- Survey on fishery of the non-state sector in 1999 financed by Denmark, assigned to the Economic and Plan fishery institute.
- Survey on stock marine creature resources (Phase I: 1996-2000; Phase II: 2000-2005) sponsored by Denmark and conducted by the Seafood Research Institute of Hai Phong.
- Programme No.773 carried out in 1999-2000 by the Department of Planning and Investment.

2.3 Statistical indicators available at central level

- Labour and income of the state establishments under Ministry of Fishery management
- Labour of catching
- Structure of fishery
- Tools and means, fishing gear
- Total fishery in value
- Export value in foreign currency
- State investment outlays in fishing

II CURRENT STATISTICAL INDICATORS

1 Statistics on structure

a. Tools and means (fishing gear) for catching
   - Number of catching establishments
   - Total of fishing boats and classification
   - Total power
   - Non-powered boats and gear
   - Establishments maintaining and building boats

b. Area under aquaculture (classification)
   - Number of stations breeding fish and shrimp
   - Freshwater: rivers, ponds, lakes and others
   - Brackish water
   - Saltwater

c. Fishery processing establishments (classification)
   - Number of frozen fishery establishments
   - Number of fish-sauce establishments

- Number of canned fishery establishments
- Other

d. Fishing ports, landing sites, fishing markets

e. Equipment
- Fish finder
- Echo sounder
- Sonar
- Radar

f. Labourers in fishing
- Labourers in capture
- Labourers in aquaculture
- Labourers in fishery processing
- Labourers in fishery services

2 Fishery production

a. Fishery production caught from natural water resources: fish, shrimp, gracilaria, other

b. Aquaculture: fish, shrimp, other
- Saltwater
- Freshwater
- Brackish water

c. Fishery production processed
- For export
  · Frozen shrimp and cuttlefish
  · Frozen fish
  · Other frozen products
  · Dried shrimp and cuttlefish
  · Smocked fish
  · Other dried and smoked products

- For domestic consumption
  · Frozen and chilled fish, shrimp and cuttlefish
  · Dried fish, shrimp and cuttlefish
  · Brine seafood, fish sauce
  · Floury fish for animals
  · Other products

III METHODS OF DATA COLLECTION

The data are collected from reports of the establishments. Every day, each employee declares the culled to the team chief or superintendent. The figures are consolidated and reported to the higher level, which passes them on, until the highest level of the ministry has the updated data records of the establishments.
Conduction of statistics survey: although design of questionnaires, plan for periodic and infrequent surveys and the procedure of the sample or complete survey have been approved by the General Statistics Office, statistical surveys have not been carried out due to budgetary constraints.

IV RELATIONSHIP WITH THE GENERAL STATISTICS OFFICE

The Statistics Division of the ministry regularly asks the General Statistics Office for advice on statistics methodology, on instructions and guidelines, on how to design the questionnaire for monthly, quarterly and yearly reports and how to present the five-year data on fishery in time series when they are released (yearbook technique).

For its part, the General Statistics Office does its best to help along the fishery statistics activities of the ministry and overcome difficulties, as it considers fishery to be a key economic sector of the nation.

V PROBLEMS AND SOLUTIONS

1 Unsolved problems

1.1 Knowledge of responsible persons on the role of statistics

1.1.1 Responsible persons in fishery

a. Leaders
   - Do not grasp thoroughly the judicial implications of statistics.
   - Take little account of the role of statistics in state management.
   - Do not concern themselves with statistics, completely trusting in the hit or miss approach.
   - Do not provide conditions conducive to the normal run of the division.
   - Have uneven knowledge of statistical action; some do not like using statistics for whatever reason.
   - When ministry staff is to be cut down, the statisticians are the first to go.

b. Statisticians
   - Statistics is the most difficult of the subjects taught at the National Economic University, and even more difficult when practiced daily over fishery at the ministry.
   - Rights do not match obligations. Thus, statisticians are dispirited.

1.1.2 Relevant agencies

a. State institutions do not have a complete understanding of statistics. They require the Statistics Division to act without giving it any authority.
b. General Statistics Office: methodological reform is slow and untimely, as is the enactment of suitable legitimate statistical documents.

1.2 Organization of statistics

a. At the Ministry of Fishery

- The Statistics Division should become an institution of state management.
- The situation of the division since its creation is illustrated in Table1 in annex.
- The role of the division is changeable at will. Not only is it not strengthened but it is relegated to low-level status as a self-supporting administrative subdivision. It is impossible for the division to fulfil its role of state management.
- The Statistics Division has no legal status in the Ministry of Fishery.

b. At establishment level

- There are one or two staff members engaged in statistics in each establishment.

1.3 Profession of statistics

a. There are only two statisticians at work in the division and their workload is heavy, as they must produce the monthly, quarterly and yearly statistics reports, compile yearly and five-yearly data on fishery. Besides, they have to perform the following:
   - Constant price for each period
   - Product directory
   - Design the scheme of the statistics returns every five years
   - Other unforeseen work as required by ministry leaders and related agencies.

   Because of staff shortages and unstable organization, the two statisticians of the division always work hard and overtime, even during their holidays.

b. Almost no personnel engaged in statistics at the subdivision level have been trained in statistics. They do their job part-time and unsupervised. The statistics indicators received by the division are insufficient and faulty.

1.4 Relationship

a. Statistics division has a close relationship with other sections of Ministry of Fisheries, while providing data on actual situations of fishery and proposing plans to leader of Ministry. The division always receive the advises of statistics methodology from General Statistics Office.

2 Solutions

2.1 Concept

a. With regard to the fishery industry

- Ministry leaders and leaders at all administrative levels should have a fairer conception of the position of statistics in the state management system, give it its rightful place in the governmental body system, and ensure good conditions for statistics operations.
- Statisticians should not only overcome obstacles and difficulties and in any case complete their tasks but also apprise their leaders of the problems that need to be solved.

b. With regard to government-related organs

- The relevant government body should enact a clear judicial document defining the function, organization, duties, rights and obligations of the statistics divisions of all ministries – something like a Statistics Act.
- Guide the statistics office at all lower levels to implement standard statistics.
- Statistics should be improved to become stronger in plan and finance.

2.2 Organization

The fishery statistical system of organization from the top down should be stable.

- At central level, it is necessary to set up a fishery statistics department with enough personnel, office equipment and other working conditions conducive to smooth operations.
- At local level too, it is necessary to have enough personnel, salary, budget, office equipment and good working conditions.

V RECOMMENDATIONS

- The Minister of Fishery should review the fishery statistics organization of the ministry. According to Government Decision No.50/CP dated 21 June 1994 regulating the duties, rights and organization system of the Ministry of Fishery, the Statistics Division is a governmental management department on a par with the ten other departments of the ministry.

- A fishery statistics department should be set up to fulfil the functions of governmental management and to carry out the statistical project sponsored by Denmark. It would be good to discuss statistical tasks with partners and thus use experience and grey matter more effectively.

- Ministry leaders should have the right conception of the fishery statistics system from central to local levels and develop fishery statistics matching regional and international practice.

- To achieve a better performance, fishery statistics activities should have enough funds and other essential working conditions.

- The fishery statistics methodology should be directed to all local statistics offices by the Statistics Division.

- The education level of statisticians should be raised through training courses on statistics in the country or overseas.

- The General Statistics Office should coordinate more closely with the Statistics Division of the Ministry of Fishery in designing the report scheme on fishery statistics for the next five-year period, starting with 2001-2005. The method of estimation of aquaculture, number of fishing boats and number of fishermen needs to be introduced in the near future. Besides, the personnel of the statistics division are in urgent need of further training on fishery statistics.

Table 1:

Organization of fishery statistical division of Fishery Ministry

(Since established to now)

	Period	Name	Total	By degree attainment				Statistics division under				
				University		Professional secondary	No certificate	Planning - Statistics	Acount-Statistics-Price	Planning and Investment	Statistics division	Fishing statistics
				Total	Of which: in statistics							
A	*B*	*C*	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*
I	**Actual situation Fishery Statistics**											
1	1959-1965	Statistics Section	4				4	x				
		Male	4				4					
2	1965-1974	Statistics Divisio	8	3	3	4	1	x				
		Male	5	1	1	3	1					
		Female	3	2	2	1						
3	1974-1978	Statistics Divisio	8	3	3	4	1		x			
		Male	5	1	1	3	1					
		Female	3	2	2	1						
4	1978-1986	Statistics Divisio	12	5	3	3	4				x	
		Male	9	2	1	1	4					
		Female	3	3	2							
5	1986-1997	No name	3	3	2					x		
		Female	3	2	2	1				x		
6	1997-now	No name	2	2	1							
		Female	2	2	1							
II	**Intention**		15	12	-							x

REVIEW OF DATA COLLECTION AND ANALYSIS IN FORESTRY SURVEYS

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I THE ROLE OF FORESTRY IN VIET NAM

Forestry is an important economic branch in Viet Nam. Most provinces, to different extent, have forests and forestland. There are 11 million hectares of forest and 21 million hectares of forestland, occupying 62 percent of the total area of the country. About 2 million m^3 of wood, 24 million m^3 of firewood and other products such as pulp and paper material and mine-pillar wood are yearly generated from forestry. The life of indigenous people in mountainous areas is closely linked to forestry. In Viet Nam, there are significant efforts to conserve the environment and thus protect against moving sand, limit flooding, balance the climate, maintain humidity, protect agricultural production and contribute to the security of the country. In recent years, the government has invested heavily in forestry and has endeavoured to formulate sound policies such as prohibiting tree cutting in natural forests and allocating forestland and forests to households and other organizations on a long-term basis. This has created favourable conditions for the promotion of forestry production. A national project of afforestation of five million hectares of land was approved by the National Assembly in 1998, so that forest may cover 43 percent of Viet Nam's total land area by 2005. Afforestation and reforestation are being launched or accelerated to meet the needs for wood, firewood and industrial materials.

The report system and survey method in the field of forestry have been continuously improved in step with the economy. The survey items and method of forestry data collection have been formulated, altered and supplemented to better meet the information needs of management and plan formulation.

At present, there are two ways of collecting forestry information. The forestry information of the state sector is collected through the regular reporting system, and sample surveys are conducted to collect forestry information on the non-state sector.

II SYSTEM OF INDICATORS AND METHOD OF DATA COLLECTION

1 Collection of data in the state sector

In 1995, the General Statistics Office in cooperation with the Ministry of Agriculture and Rural Development promulgated the Statistical Reporting Regulations to be applied by various economic entities such as board of management project, state farms and state enterprises, partnership companies, corporations, protective forest offices, and others. Several items and indicators are included in the reports prepared by state units to satisfy the requirements of state macroscopic management and their own management needs. The quantitative and value reports are as follows:

1. Yearly report on gross output of forestry by economic activity and by product, calculated at current prices and at constant 1994 prices.

2. Monthly, quarterly and yearly reports on production, consumption and turnover. These reports were designed to reflect production and consumption obtained in kind and value of main products such as concentrated afforestation, forest care, scattered trees planted, forestland allocated for protection, exploitation of round wood, firewood, bamboo, slender bamboo, pulp-and-paper material, rattan, etc, consumption of wood, firewood, etc, products in stock, taxes paid.

3. Biyearly report on forest management and protection. This report consists of indicators on land and forest allocation, value and area of forest damaged by fire, forest loss by deforestation for planting agricultural crops.

4. Yearly report on gross output, intermediate consumption (including the value of goods and services consumed in producing gross output) and value added, broken down in compensation of employees, tax on production, consumption of fixed capital, operating surplus and mixed income.

5. The report on the implementation of Project No.327. This is requested four times a year, namely, for the implementation over three, six and nine months and for the whole year.

6. Biyearly and yearly reports on area of afforestation by main group of trees.

7. Biyearly and yearly reports on the production of exploited round wood by main group of trees.

8. Yearly report on production of forest products obtained from planted and natural forest in both state and non-state sectors. This is reported by the provincial agricultural offices and the forest protection offices.

9. Report on expense of labour and income. This is indicated in value with a breakdown by stage – planting stage, stage of forest care and stage of exploitation.

One or more staff in each state unit is assigned to complete and send reports to the provincial statistics offices according to the forms and items required.

The statistical reporting regulations for state units have been improved several times to collect adequate information to meet the management requirements of the government at different periods of time.

Checking and monitoring are frequently carried out by the provincial statistics offices to make sure that reporting regulations are strictly followed.

As already mentioned, the latest statistical reporting regulations were issued since 1995. Several items and forms are no longer in synch with current management mechanisms.

- Instead of the implementation of Project No.327, a project of afforestation of five million hectares was launched in 1998. The report required on the implementation of Project No.327 is out of date. It is necessary to design another form to gather information on the progress of the new project.
- The report on production, consumption and turnover is required monthly and includes several unnecessary items such as indicator on new seeds.
- The important indicator on the forest area of state units at the end of the reporting year should be included in the Statistical Reporting Regulations.
- To better serve user needs the General Statistics Office and the agriculture ministry should update the statistical reporting regulations for state units to make them conform to the actual situation of production.

II COLLECTION OF DATA IN THE NON-STATE SECTOR

The non-state sector plays an important role in forestry activities, as it accounts for 70 percent of the gross output of forestry. Some products such as scattered trees, firewood and bamboo are mainly produced by this sector. Therefore, it is very important to determine the proper method of data collection for the sector.

Most of the non-state sector consists of households, which are widely distributed. Collection of data by sample survey is the sound method for the sector.

In 1980, for the first time, a complete enumeration survey on afforestation covering all provinces was conducted by the General Statistics Office in cooperation with the Ministry of Forestry. The survey was implemented to assess the achievements of afforestation efforts over the previous two decades.

A sample survey has been conducted every two or three years since 1986 to collect forestry information in the non-state sector. The General Statistics Office and the agriculture ministry have cooperated to conduct the survey and improve method, procedures and survey items.

The instructions on the survey method and the procedures currently applied can be described as follows:

1 Objectives of the survey

- To collect accurate and adequate data on the number of scattered trees planted by the survey date and in the previous 12 months and on production of forestry harvested from planted forest, natural forest and scattered trees planted by households, cooperatives, schools and other units of the non-state sector.
- To assess the production of forestry and the efficiency of investment for afforestation.
- To calculate other related indicators.

2 Coverage, subject and survey items

The survey of non-state forestry is conducted in all provinces and cities of the country.

The scattered trees[(1)] under the subject of the survey are: (1) forest trees planted for the purposes of wood and firewood exploitation, protection of the environment, production and daily-life usage; (2) forest trees planted in gardens; (3) forest trees planted by the roadside for shade; and (4) forest trees intercropped with agricultural crops to maintain humidity and protect the crops from the sun. Some trees of special economic importance are included among the forest trees such as nipa, cinnamon tree, palm tree, etc.

3 Design and sample selection

3.1 Design: The survey is conducted in all forestry districts[(2)]. The district is the domain of the survey; estimates from the survey are calculated on a district basis. The combination of three-stage sampling and subjective method is applied to select samples. The first-stage sampling unit is the commune, the second-stage sampling unit is the village and the third-stage sampling unit is the forest household.

3.2 Sample selection: The procedure for selecting sampling units is as follows:

3.2.1 Selection of the sample commune

Step 1. All communes and towns of the district are classified into three or four strata according to the natural condition or situation of forest production. Communes under the same situation of forest production are grouped in the same stratum.

For districts producing high-value forest products in concentrated areas, communes can be classified by type of forest product, such as stratum of Cinnamomum cassia, stratum of pine resin, stratum of paper material, etc.

(1) Forest trees planted in an area of less than one hectare
(2) Districts with units, households engaged in forestry

Step 2. In each stratum, one or two communes are chosen by the subjective method to represent the whole stratum.

3.2.2 Selection of sample village: one or two villages are picked out from the sample commune applying the subjective method. The sample villages should be representative for the commune in terms of forest production.

3.2.3 Selection of sample households

10 to 15 percent of forest households of the sample village will be selected by linear systematic sampling. The selection procedure is as follows:

Step 1. Listing all households engaging in forestry in each sample village. All these households are numbered from 1 to the end.

Step 2. Calculating the number of households that need to be selected. (.0.1/0.15 x N; N is the number of forestry households in the village).

Step 3. 10 to 15 percent of the forestry households are chosen by using a random start and calculating the sampling interval (K) by the following formula:

$$K = \frac{\text{Number of forestry households in the sample village}}{\text{Number of sample households (from step 2)}}$$

4 Method of data collection

For sample households, enumerators interview the heads of household and complete the required questionnaire.

For cooperatives, schools and other non-state units, two methods are used to collect information: the questionnaire is either completed by enumerators or sent with instructions to cooperatives, schools and other units. The units send back the completed questionnaire to the district statistical office.

For forestry production, the time reference is the twelve months prior to the survey date.

There are some notes for enumerators when interviewing heads of household and other units:

(1) For forest products frequently exploited and consumed such as firewood, total production can be estimated through interviews on items produced or consumed in one day multiplied by the number of days of the month or of the year.

(2) For seasonal products such as bamboo shoot or Jew's ear, the interview should focus on the relevant season.

(3) For products infrequently exploited, it is necessary to interview carefully and observe related things in the households.

5 Data aggregation and estimation

5.1 Estimation of the stratum

The data collected from sample households of the stratum is aggregated and then the average indicators per capita (or per household) of that stratum are calculated. The total of the stratum will be estimated by multiplying the average indicator per capita or per household of each product with the forestry population or forestry households of that stratum. For example:

Number of scattered trees planted of the stratum	=	Average number of scattered trees planted per capita or per household in the sample households of the stratum	x	Forestry population or forestry households of the stratum

5.2 Estimation for the district

The total production of a product in one district is calculated by aggregating all strata in that district. Data aggregation for a district can be illustrated as follows:

Stratum	**Forest population of stratum**	**Scattered trees planted per capita (trees per person)**	**Production of wood exploited per capita (m^3/person)**		**Bamboo shoot (Kg/person)**
			Total	**From planted forest**	
Stratum 1	5 200	0.5	0.4	0	0.6
Stratum 2	6 400	0.8	0.3	0.08	0.35
Stratum 3	13 000	2	0.1	0.1	0.2

- Production of wood exploited: (5 200 x 0.4) + (6 400 x 0.3) + (13 000 x 0.1) = 5 300m^3, of which from planted forest: (6 400 x 0.08) + (13 000 x 0.1) = 1 812m^3
- Number of scattered trees planted: (5 200 x 0.5) + (6 400 x 0.8) + (13 000 x 2) = 33 720 trees.

The same procedure is applied to aggregates and estimates for other forest products.

5.3 Estimation for the province

The total production of each product in one province is calculated by aggregating all districts in that province.

5.4 Data review

Data collected is reviewed at three levels: district, province and central. Data collected is reviewed by the district statistics offices and then passed on to the provincial statistics offices. At province level, data review is undertaken after survey returns are processed and estimates have been generated. The results are sent to the General Statistics Office for consolidation and review at the national level. When reviewing the collected data at each level, comparison should be made with data previously collected and data of other related sources.

6 Survey date and frequency

Due to lack of budget, the survey has been conducted every two or three years. According to the plan proposed, the survey will be conducted in the years 2000, 2003 and 2005.

The survey date is 1 October. The survey results have to be available to the General Statistics Office before 1 December of the surveyed year. In the years when the survey is not conducted, forecast reports are made by the provincial statistics offices based on information of the previous years and the actual situation of the reporting year.

7 Organization and guidance of the survey

The survey is conducted by the General Statistics Office in cooperation with the agriculture ministry from the central to the province and district levels. The office is responsible for statistical methods and procedures such as preparation of instructions, questionnaires, training, etc. The agricultural offices at the various levels cooperate with the state statistics offices in organizing and guiding the survey.

III OUTPUT INDICATORS

Based on the information obtained from sample surveys and the regular reporting system, the following indicators are aggregated and reported by the provincial and central statistics offices:

1) Forest areas[(3)] at 31 December classified by economic sector (state, cooperative, private, etc) and by planted forest and natural forest. This indicator is also classified by utility such as productive forest, protective forest and special forest (yearly).

[(3)] Areas with 30-percent or more forest cover

2) The situation of afforestation and forest care by economic sector, number of scattered trees planted, area of planted forest under care, area of replanted forest (nine-monthly and yearly).

3) Production of wood and other exploited forest products classified by economic sector and by planted forest and natural forest (nine-monthly and yearly).

4) Gross output of forestry classified by value of afforestation and forest care, value of exploitation of wood and forest products and value of other forest products such as gathered products, and services (yearly).

5) Intermediate consumption and value added of forestry (yearly).

6) Situation of damaged forest (yearly):
   - Number of forest fires.
   - Value of forest damaged by fire.
   - Value of forest loss through deforestation for planting agricultural crops.

IV PROPOSALS

The indicator system and methods of data collection have been set up and applied for years. Meanwhile, some problems and issues have emerged that need to be solved as soon as possible.

- Items on afforestation and forest products exploited as designed in the regular reporting system should be improved and augmented in line with new policies and the actual situation.

- According to current regulations, the central and provincial statistics offices have to make reports on production of each forest product and on gross output of forestry at current and at constant prices. However, data on production of forest products in the non-state sector are collected through sample surveys carried out only every two or three years. As a result, the statistics offices at central and provincial levels find it difficult to release accurate information in non-survey years. The solution is to conduct the survey every year.

- Studying the experience of other countries is necessary for Viet Nam to improve forestry statistics in order to satisfy management requirements and bring statistical work on a par with international practice.

OVERVIEW OF THE FIRST AGRICULTURAL CENSUS OF VIET NAM IN 1994

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The Prime Minister promulgated Decision No.568/Ttg dated 19 October 1993 on the holding of Viet Nam's first agricultural census in 1994. Agricultural censuses are normally carried out every five to ten years in developed countries, but for us, a country with very complex rural realities, it was a first census. With no experience in this kind of large-scale endeavour, the General Statistics Office faced difficulties and obstacles in dealing with a great number of issues during the implementation of the census, issues such as identification of the objectives and content of the census or determination of proper methods for the collection, tabulation, processing, analysis and dissemination of the data. Nevertheless, much effort by the office and the relevant line ministries from central to local levels was made. As a result, all stages of the census had been successfully implemented by the end of 1995.

I IMPLEMENTATION OF THE AGRICULTURAL CENSUS

In order to implement the census, the Department of Agriculture, Forestry and Fishery Statistics of the General Statistics Office studied documents related to the experience of agricultural censuses of Asian countries and other countries in the world, especially the publication provided by FAO, *Programme for the 1990 World Census of Agriculture*. The knowledge obtained from such study was really useful for us to (1) define the census objectives, (2) determine the contents and method of census, the steps needed for the implementation of the census, (3) determine the census scope and subject, (4) design questionnaires, census items and data tabulation, (5) explain concepts, and (6) identify the methods of data processing and analysis.

In the implementation of Agricultural Census 1994, the following activities on the organization and instructions were carried out.

At the central level: As per the Prime Minister's directive, the General Statistics Office, in collaboration with other relevant line agencies, was responsible for conducting the agricultural census throughout the country. Accordingly, a technical working group was set up. According to Decision No.141/TCTK dated 18 December 1993 of the General Statistics Office, the 24 members of the technical working group were recruited from GSO and other relevant line agencies such as the Ministry of Planning and Investment, the Ministry of Agriculture and Food Industry, the Ministry of Fishery, the Ministry of

Finance, the General Cadastral Office and the Central Economic Committee. The group was mainly responsible for overall advisory role in the conduct of the census, including design of questionnaires, preparation of instructions and manuals, and organization and management of the implementation of the census from beginning to end. During the implementation of the census, the Department of Agriculture, Forestry and Fishery Statistics of GSO was assigned as the standing office.

At provincial level: A provincial guiding board, chaired by a vice-chair of the provincial people's committee, was established in all provinces. The director of the provincial statistics office was assigned as the standing deputy leader of such a board. The other members of the board were recruited from concerned offices of the province.

At district level: A district guiding board, led by the chair or vice-chair of the district people's committee, was set up with the participation of the relevant offices of the district, such as the agricultural section, the farmers' association and the planning statistical section. Acting in an advisory capacity to the board was a standing group composed of experts in the field of agriculture and rural economy. Board operations received input from the people's committees at different levels.

At commune level: Similarly, a commune guiding board was set up headed by the chair of the commune people's committee. The two other members of the board were the manager of the agricultural cooperative and the commune's statistician, who was assigned to head the group of enumerators.

Thus, a central technical working group was set up instead of a steering committee. This reduced unnecessary activities at central level. Much effort, therefore, could be allocated for guidance of and instructions to downstream activities. But at lower levels, the guiding boards were set up with the participation of the relevant offices to make sure the implementation of the census would be conducted properly.

One month after the Prime Minister's decision had been promulgated, the General Statistics Office held a meeting with line agencies to set up the group. Based on the functions and responsibilities entrusted, the technical working group acquainted itself with the experience of other countries and international organizations in defining census guidelines, designing questionnaires, clarifying the methods of data collection and data processing, and figuring out the calculation of census indicators. Additionally, the tables and forms of quick aggregated data and the official aggregated data system were also set up.

Still at the preparation stage, several workshops on the agricultural census were held with the participation of the technical working group and relevant agencies to prepare the documents needed for the census. Pilot runs of the census were conducted in four provinces (Thai Binh, Nghe An, Thai Nguyen and Kien Giang) representing four different economical regions of the country.

With instructions and guidance from the central level, guiding boards at province, district and commune levels were set up by the end of 1993. Then, the technical working group and the guiding boards at the various levels recruited experts, supervisors and enumerators for the census. At the local level, a number of supervisors were mobilized from related offices. Each supervisor, depending on personal ability and tasks assigned, was responsible for instructing and monitoring the implementation of the census in the required areas. In each province, a number of supervisors and enumerators were recruited and mobilized depending on local travel conditions, number of households and qualification of officers of each region (plains, mountainous areas, highlands, remote and island areas, minority areas).

The census was conducted by strengthening direct guidance and instruction in rural areas by experts from the technical working group. The experts had at least bachelor degrees, knowledge and experience; they were recruited from GSO and relevant ministries and agencies. They had undergone intensive training on conducting the census and were responsible for instruction and guidance over two to five provinces.

There was close cooperation between the central level and the local guiding boards in monitoring, and in instructing enumerators. Most supervisors worked closely with enumerators and the guiding boards at various levels to help guide and check census results. The supervisors were also in charge of identifying existing problems in their areas and of solving them. This contributed remarkably to accelerate the pace of the census, improve the accuracy of the data collected at all levels and thus fulfil the census plan.

The training for supervisors and enumerators was carried out from the top down as follows: At central level, a five-day training course was held for all experts and supervisors from GSO and the provincial guiding boards. At local level, the training of district supervisors by experts or supervisors from the technical working group and the provincial guiding boards took four days. Then enumerators in the communes went through a four-day training course, including one day of practical work at ED**.**

The importance of the census, its objectives and methods were widely and creatively advertised throughout the country, even in the remotest areas. Suitable methods of publicity, including advertisements, television and radio programmes, meetings with the heads of household, propaganda slogans, posters and public notices, were used as deemed appropriate to local conditions.

A basic rule in census taking is that the tabulation plan needs to be prepared concurrently with the design of questionnaires, so that it is ready before fieldwork begins. The printing of documents was done in time throughout the census-taking process. Questionnaires, tables of quickly aggregated data, slogans and badges were carefully prepared and checked against the census work-plan to fulfil its requirements. Due to lack of budget, cartographic preparation such as maps of surveyed households by each ED in

the communes was not done before the fieldwork began. Instead, lists of households by village and commune were prepared.

The agriculture census consumed a great amount of state funds. VND40 billion (US$4 million) was allocated for the implementation of the categories basic situation of households (about 12 million agricultural households) and infrastructure of communes (nearly 10 000 communes). The sample survey on income and expenditure in 1995 consumed a further VND20 billion. Expenditure on each item at each level was clearly regulated. The General Statistics Office in cooperation with the Ministry of Finance audited the funds used for the census in the localities. The ministries involved reported that the funds had been most effectively used.

In short, the agricultural census carried out over 1994 and 1995 was well prepared and its implementation complied with the detailed plan and guidelines of the standing office at GSO, thanks to the active participation of the relevant agencies. By the end of 1995, the official data of the census was released.

II OBJECTIVES, SCOPE, CONTENT AND METHOD OF THE CENSUS

Pursuant to Decision No.568/Ttg of the Prime Minister and to the guidelines of the General Statistics Office, the objectives of the 1994 agricultural census were as follows:

(1) Collect basic information needed for assessing the real situation and potential of the rural areas and of agriculture, satisfy requirements for the formulation of a strategy of socio-economic development and of the national five-year plan for 1996-2000.

(2) Use the outcome of the agricultural census as sampling frame for annual surveys and for comparison with the data on rural socio-economic development in the next census.

Consistent with these two objectives, the agricultural and rural census of Viet Nam covered four main categories:

1 Basic situation of rural households;
2 Infrastructure system of communes, villages and hamlets;
3 Income, expenditure and housing of rural households; and
4 Rural economic structure (agriculture, industry, services) and production efficiency of crop and animal production.

Category 1 and category 2 were implemented through complete enumeration in all rural areas, including three forms of questionnaire as follows:

1 Form1/HH: Basic situation of rural households

This included six groups of items

(1) Household, population, labour: the following information concerning to households and the labour force needed to be collected:
   - Agricultural population
   - Labour (16-60 working age) of household;
   - Characteristics of the head of household;
   - Type of household: households in rural area were classified into eight types: Agricultural Household, Forestry Household, Fishery Household, Industrial Household, Construction Household, Commercial Household, Services Household and Other. Additionally, types of household were classified by composition: Cooperative Household, Individual Household, Private Household and Hired Household.

(2) Housing and household furniture: Housing data included condition of housing, housing area and main furniture in the house. There are three types of housing: Permanent, Semi-permanent and Other. Among the main furniture items were Television, Radio and Motorcycles.

(3) Land: according to the land tenure category for the whole or each parcel: Resident land, i.e. land used for constructing a house; Agriculture land; Forestry land; Water area for culture; and land which the holder had the right to use but had not used yet.

(4) Planted area of main crops in the surveyed year, including food crop and other annual crops such as soybean, peanut, tobacco, sugarcane, mulberry, jute, sedge, etc, and perennial crops such as tea, coffee, coconut, cashew nut, rubber, orange, banana, mango, litchi, longan, etc.

(5) Poultry and livestock, including buffalo, cattle and pig.

(6) Machinery and equipment such as tractor, thresher, powered fishing boat, powered boat used for transportation, electric generator, power engine, etc.

2 Form 2/commune

This form was designed to collect basic information on communes, wards and towns, as follows:

- Basic situation of commune including information on household, population, number of villages and hamlets, number of cooperatives.
- Infrastructure and other information on communes such as roadway, clinic, post office, broadcasting station, market, school, kindergarten, pumping station, land area by type, planted area of main crop, animal raising, and main machinery.

3 Form 3/state unit

The form was designed to collect basic information on state units engaged in agriculture, forestry and fishery. The following main items were included:

- Basic situation of household and labour working in the state units
- Land area by type
- Planted area of some main crops
- Livestock and poultry
- Main machinery and equipment.

In order to achieve the objectives stated, the census covered not only agricultural households but also other organizations and households in rural areas (including households, establishments and farms engaged in agriculture, forestry or fishery) and the basic situation of communes, villages and hamlets in the whole country.

The census date was set at 1 July 1994; the census reference year was the twelve-month period from 1 July 1993 to 30 June 1994. In order to avoid the rainy season, some localities in remote highland areas were allowed to start fieldwork before 1 July.

Regarding tabulation, there were two types of output table for the census, as follows:

- Tables required for quickly aggregated data, numbering seven in total. The quick data processing of the main survey items that was mainly done during the review of the data was a valuable initiative. The information, after being quickly summarized, was very useful to users, even though it consisted of a few main figures and was preliminary.
- Tables of the official data: the outcome of official data included 421 tables and 2 111 pages published in three volumes.

Census methodology: The agricultural census consisted of two parts:

- Part 1: basic information was surveyed in 1994 through complete enumeration of all rural households, all communes and all the enterprises and establishments of agriculture, forestry and fishery throughout the country.
- Part 2: income, expenditure, economic structure and production efficiency (both crop and animal production) were surveyed in 1995 by sample survey.

The direct interview method was applied in both census and survey. With this method, enumerators had to meet directly the head of household or a representative household member to complete the questionnaire. Enumerators were totally prohibited from completing the questionnaire when a respondent was not available. In order to minimize errors, enumerators had to compare the data collected in the interview with data from other sources. It was also very important to observe the actual situation of the household during the interview. Village heads should be consulted over the data collected.

Enumerators also had to regularly check the data collected when completing the questionnaire. The completed questionnaires were thoroughly checked by supervisors from the higher level for possible errors requiring corrective action.

III EXPERIENCE GAINED FROM THE CENSUS

After more than two years of preparation and implementation, the final data of the agricultural census of Viet Nam was released by the end of 1995. The time spent preparing and implementing the census was shorter by one to two years compared with other countries. The census results were generally good. A lot of new and precious documents were produced. The agricultural census in Viet Nam was a large-scale statistical affair. It covered 9 676 communes, 71 952 villages and hamlets, 11 974 515 households, 1 658 state units and 57 088 078 persons, including 27 380 589 labourers. The main reasons for the success of the operation can be stated as follows:

- The experience of other countries in conducting an agricultural census was thoroughly studied well in advance through a variety of documents.

- Determination of the census items was correct and adequate. According to international conventions, the items of an agricultural census are limited to the agricultural sector, but in Viet Nam the census items covered basic issues of the rural economy, such as rural industries, infrastructure, labour force, market, and electricity prices. This expansion of the census items made the census more informative since the information and data obtained would serve directly for the formulation and monitoring of government policies on agriculture and the rural economy. Information on rural issues and infrastructure enhanced the importance of the census and attracted more attention and remarkable financial support from leaders of sectors at different levels. The information collected in the census at the end of 1994 has been used to meet the requirements of the government in assessing the actual socio-economic conditions in rural areas after the Five-Year Plan ended in 1995 and in formulating the socio-economic development strategy for the 1996-2000 period.

- The census was well and strictly organized and implemented in close cooperation with the ministries and institutions concerned at all levels. The instruction and training of enumerators and supervisors was adequate for each level (central, province and district). The census was conducted with direct guidance from and instructions by experts from the technical working group at central level and the supervisors from the guiding boards upcountry. The experts and supervisors were assigned to monitor their respective areas for five to six months. This contributed to hasten the pace of operations.

- Throughout implementation, the allocation of funds to localities, and to enumerators in particular, was timely. Expenditure for each item and at each level was clearly regulated.

Disadvantages and outstanding issues

- 1994 Agricultural Census was a first one carried out in Viet Nam. The survey items of the census were very complicated while the department had no experiences, and no study tour had been arranged to study experience of other countries and international institutions. Although, the budget was limited, there were extremely strong demands of the Government on information. The preparation time for census was too short (seven-eight months) compared with two years in other countries. Therefore, the General Statistics Office met a lot of difficulties during conducting the census throughout the country.

- According to international wisdom and to FAO recommendations, an agricultural census should cover all agricultural households in the country, including both rural and urban areas. The coverage of the agricultural census of Viet Nam in 1994, on the other hand, was restricted to households in rural areas, both agricultural and non-agricultural households. In order to have a comprehensive picture of agriculture, forestry and fishery, coverage was expanded to urban areas in some big cities and industrial provinces such as Ho Chi Minh City and Dong Nai province. This resulted in inconsistencies in the coverage of the provinces. The data collected, as a result, cannot be used for domestic and international comparison. To my mind, it is necessary to hold workshops to discuss the extent of coverage required for the successful implementation of the next agricultural census.

- The content of the census was thoroughly prepared and mulled over in the workshops held by the General Statistics Office with the participation of the relevant line agencies. Besides, pilot runs were conducted in four provinces before implementation of the census. However, some survey items, such as machinery and boats used in agriculture, forestry or fishery, were too complicated. It was difficult for enumerators to distinguish between machine types, or boats used for daily life purposes from boats used for production. Some concepts and definitions were not explained clearly enough, such as the criteria for land categories, and enumerators had trouble figuring things out and completing the questionnaire. Another case in point is insufficiently clear guidelines on how to distinguish resident land and garden land from agricultural land. This resulted in different interpretations and applications among localities and enumerators. The stipulation on classification of households was good for the whole country but seemingly unreasonable in some areas. Ditto with the explanation of the concepts of permanent house, semi-permanent house and other types of house, or with the split of household types into cooperative household, individual household and hired household. The data on production of permanent

crops such as coffee, tea and cashew trees was of low quality, resulting in inadequacies and overlap. Furthermore, the technical working group and the local guiding boards paid much more attention to collecting information on households and communes than to state units engaged in agriculture, forestry or fishery. The information collected on these enterprises was generally inadequate and unreliable. In brief, the common problems faced during the conduct of the census were that the explanations given beforehand were not specific enough and the characteristics of individual regions had not been properly taken into account.

- The budget allocated for the census was very limited, so that some important activities such as cartographic preparation, which should give the exact delineation of each enumerator area to avoid omission or duplication, were excluded. Instead of drawing maps, lists of households in villages were prepared, resulting in overlaps and omissions in data collection. Also due to the lack of budget, no final meeting was held at national level to assess the problems, issues and constraints encountered and solutions proposed for the next census of agriculture.

In this paper, I have presented some remarks on and an assessment of the conduct of the first agricultural census of Viet Nam in 1994. The implementation of the sample survey on income, expenditure and housing of rural households and on the structure of the rural economy in 1995 will be touched upon at the next opportunity.