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DIALOGUE BETWEEN PRODUCERS AND USERS OF DEVELOPMENT INDICATORS:

Statistical Systems in Food and Agriculture and Industry *

BURTON T. OÑATE **
Member, Uichanco Foundation, Inc.

I. Introduction

1. Any dialogue between producers and users of development indicators is more meaningful if the major components and the interactions between these components of the statistical systems in Food and Agriculure (FAA) and Industry could be presented as basic framework for the dialogue. For this purpose, FAA will include the sub-sectors of crops, livestock and poultry, fishery and forestry while Industry is defined as manufacturing, mining and quarrying, construction, utilities (electricity, gas and water) and transportation including storage and communication.

2. With these concepts, the FAA sector accounted for about 26.5 per cent of the 1977 Gross Domestic Product (GDP) at 1972 market prices while Industry's share reached 39.3 per cent. In 1968 (or ten years ago), the share of FAA was 30 per cent and Industry 32.5 per cent. Thus, the percentage share of Industry in GDP appears to be increasing from 32.5 per cent in 1968 to 39.3 per cent in 1977 while the share of FAA decreased from 30 to 26.5 per cent of GDP during the same period.[1]

3. A sound statistical system is a basic requirement for effective planning and development. Exchanges of views between producers and users of developmental indicators will enhance the quality of data in terms of its relevance and useful-

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** Past-President and Member, Council of Advisors, Philippine Statistical Association (PSA). Dr. Oñate served as Moderator of the Conference.

[1] NEDA. National Accounts of the Philippines. 1977.

ness, accuracy and reliability, timeliness and consistency. The users of data could also indicate their needs and pinpoint other gaps in the statistical system. On the other hand, the producers of data could show what they can offer within the limitations of human, financial and technological resources.[1] It is hoped that this dialogue will bring about new programs and approaches towards the improvement of the nation's statistical system.

II. Statistical System in Food and Agriculture (SSFA)

4. Each sector in the FAA is an important section in each component of the Statistical System in Food and Agriculture (SSFA).[2] Thus, crops, livestock and poultry, fishery and forestry, each contributes an important section in the Censuses, Current Statistics, Production Accounts, Food Balance Sheet, Analytical Studies and/or Comparative Experiments in Research and Development (see Chart 1.2, p. 30). A brief discussion of each component of the SSFA will illustrate the important role of statistics in planning and development.

5. The types of information collected by the statistical system may either be macro or micro, basic or derived. However, the system must also consider the analytical studies on statistical theory and methodology[3] and other required components generated by research institutions as well as special approaches applied to and results derived from agricultural area and development schemes which are funded by resources from national, bilateral and multi-lateral sources. Macro-statistics refer to estimates of national totals or averages while micro-statistics are estimates of the contribution of individual units or sub-components to the total.

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[1] Oñate, B. T. Partnership Between Producers and Users of Marketing Information: Role of International Statistical Agencies. The Philippine Statistician. Vol. XXIV, No. 3/4. December 1975. Presented at the Sixth Asia-Pacific Regional Marketing Conference, Pasay City, October 1974.

[2] Oñate, B. T. Statistical System in Food and Agriculture. Advanced Course on the 1980 Census of Agriculture Program for the Asian Region. Statistical Institute for Asia and the Pacific. Tokyo. pp. 32-66. June 1977.

[3] Another dimension of this dialogue is the consultations going on between the producers of statistical theory and methodology and the users of statistical techniques.

A. Micro-Statistics

1. Current Statistics (CS)

6. Current statistics usually refer to national, regional or state (provincial) aggregates on production of and areas under different crops, quantities exported, imported and consumed and similar estimates for livestock, poultry, fishing and forestry. Admittedly, the coverage of crops, fishing, etc. is not complete and a number of developing countries still rely on eye-estimates and on rather subjective methods rather than on sampling techniques. Current statistics will generate the index numbers of total agricultural and food production and will give rise to estimates of indices for per capita agricultural and per capita food production. The weights are, however, obtained generally from the Census of Agriculture and Fishery. The current statistics collection system could be used as vehicle or rider in the generation of essential statistical series on food and agriculure such as items on cost of production, capital formation, credit and savings, income and expenditure, land reform and other series required in agricultural and other developmental plans.

2. Food Balance Sheet (FBS)

7. FBS shows the food supply in a country at retail level as measured by total production adjusted for trade, changes in stocks, quantities used for animal feed, seed, manufacturing or utilization and amounts wasted during distribution up to retail levels. Extraction rates are important statistical components of the FBS and these estimates are usually made available as by-products of efforts from research institutions or as separate ad-hoc studies by the statistical system. The preparation of Food Composition Tables (FCT) requires certain statistical bases which could be met only through joint cooperative effort between research institutions and the statistical system. The estimation of calories, protein and fat of each of the numerous food and agricultural commodities should be based on good samples which should be adequately weighted or represented in the materials studied in the laboratory or research stations.

8. **The Commodity Balance Sheet Approach.** The "Commodity Balance" [1] may include all commodities emanating from the agricultural and fishing, mining and manufacturing industries. The basic idea is to integrate commodity classifications of data on production and trade and to calculate "Available Supply" on the basis of the following initial structure:

Production ≠ Import - Export = Balance (Available Supply) (Eq. 1)

After this initial phase, the second stage will include the estimation of the distribution of "Available Supply" or the "Balance" of the right side of the Equation (1). These approaches will also evaluate the quality of production, trade and other related statistics which will give the so-called "Balance Sheet" as follows:

Food Products

Production ≠ Import - Export = Stock ≠ Feed ≠ Seeds ≠ Processing (Industry) ≠ Depreciation (waste) ≠ Food (gross) (Eq. 2)

Mining and Manufacturing

Production ≠ Import - Export = Stock ≠ Fixed Capital Formation ≠ Processing Materials ≠ Depreciation ≠ Consumption (Eq. 3)

9. In the case of food products (Eq. 2), the "Balance Sheet" is similar to that of FAO's Food Balance Sheet. The completion of the components in Eq. 2 as a "Food Balance Sheet" would not only improve the current statistics in the FBS of countries already reporting to FAO but would afford an opportunity for those countries not yet reporting to FAO to make available this kind of information to FAO through the structure of the Commodity Balance Sheet. One of the important

[1] Statistical applications of Commodity Balances are:
a) Index Numbers of Food and Agricultural Production;
b) Economic Accounts for Agriculture; c) Food Balance Sheets: Supply/Utilization Balances for Agriculture; and d) Consistency Checks.

problems which will be met would be the evaluation and possible improvement of statistics on production and then, on trade. Thus, the calculation of "Available Supply" will look into this problem of reliability of statistics on production, the accuracy of data on trade and also on estimates for the various items in Eqs. 2 and 3. The discrepancy in each component on both sides of the equations will be one of the primary concerns of the Commodity Balance Sheet.[1] An experience in Thailand is illustrated in the succeeding paragraphs.

10. In Thailand, the collection of current agricultural statistics is located within the Ministry of Agriculture. Area sown, damage and production are obtained from farm households in each village (mauban) for each crop by the village headman (Phuyiaban). Area and production of annual crops, perennial crops, number of livestock and poultry are also obtained at the village level. The local officials may frequently require training in the proper use of concepts and methodology to be followed in the collection of statistical information. For example, in the Second National Economic and Social Development Plan, 1967-1971, the production target for "paddy" in 1971 was was set at a level of 13.7 million m.t. In 1965, this crop accounted for about 12 per cent of the Gross National Product and rice was the leading export earner accounting for more than one-third of total exports. Since the commodity flows from the agricultural to the other sectors, moderate to large changes in the production levels for "paddy" in the national accounts would also generate changes in the levels in the other sector. Since the national accounts are used as the statistical framework of the macro-development plan, such changes would definitely affect the entire plan for, say, 1967-1971. The National Statistical Office (NSO) on the basis of accepted statistical collecting framework estimated paddy production in 1966-1967 at 13.5 million m.t. set for 1971 in the national plan. This estimate of NSO has an acceptable level of reliability although from the point of accuracy, it may be considered as an underestimate since the definition of a farm was set at a minimum of 2 rai (or 0.32 ha.). There are several reported production levels of paddy. The revised national accounts of Thailand for 1960-1969 indicated that the paddy production levels have been revised as per NSO estimates and consequently value added of

[1] The Regional Commondity Balance Sheet (CBS) Project is a joint effort of the ADB, ESCAP, IDE, FAO and six cooperating DMCs of ADB, namely: Indonesia, Malaysia, Philippines, Thailand, Singapore and Korea (Rep. of). A Technical Manual on the preparation of the CBS was distributed to ESCAP member countries in mid-1977.

the agricultural sector as well as manufacturing, trade and changes in inventories had to be revised in order to maintain consistency. The new revisions resulted in a value added estimates for rice output of about 9 per cent higher than the previous agricultural sector estimates at current prices for 1966 and 1967 and about 5 per cent higher for 1968.

11. **Use of Balance Sheets.** On the basis of new but higher consumption data also derived from NSO statistical programs in 1966-1967, it was estimated through sampling procedures that total personal consumption accounted for 8.5 million m.t. About 0.5 million m.t. is for feed and industrial uses and another 0.5 million m.t. for seeds. Of the remaining 4.0 million m.t., 3.4 million m.t. is non-glutinous and 0.6 million m.t. is glutinous. The stock reserve of the non-glutinous is 10 per cent or 0.3 million m.t. which leaves about 3.0 million m.t. for export. With recovery rates of 66 per cent and 60 per cent, the exportable rice surplus will be 2.0 million m.t. and 1.8 million m.t., respectively, for the two types of rice. In 1965, the country exported 1.9 million m.t. of rice. To arrive at a figure for the exportable surplus, one needs accurate estimates of production, seed requirements, industrial and other uses, carry over stocks, conversion rate and population figures. This is a Food Balance Sheet (Commodity Balance) approach. In the former series, production and consumption were both understated while the other components were assumed to have remained constant. Thus, the exportable surplus obtained from the two series was about the same. The details of the production/utilization/trade flows for paddy for 1966-67 are given in Table 1.1. By and large, these series will provide either sound or faulty decisions depending upon the quality of the component parts. The consistency of sectoral data may be tested with the use of the production/utilization/trade framework. These experiences point to the need of considering a systems approach for the data collection and data production on the food and agricultural sector in general. This framework could easily be applied to the Fishery Production/Trade/Utilization Sheet for any year for every country. The FBS for the Philippines (1973) given in Table 1.2 will illustrate the estimates of availabilities for consumption per capita with special reference to "Fish and Marine Products."

3. Production Accounts for Agriculture (PAA)

12. Production Accounts for Agriculture (PAA) as recommended by FAO is part of the Economic Accounts compiled by

Table 1.1 PRODUCTION/UTILIZATION OF PADDY 1966/67. Thailand [a]
(Million Tons)

Region	*Production*	*Consumption*	*Seed Requirement*	*Production Minus Utilization*	
N	3.70	2.00	0.10	1.60	About 10% of 4.50 mt or 0.5 mt is for feed and industrial users. Stock Reserve is 10% of 3.5[b] or 0.34 mt. Thus leaving 3.01 for export. The recovery rates ranged from 60 to 66%. The amount left for export is estimated to be from 3.01 x 0.66 = 1.99 to 3.01 x 0.60 = 1.81 million tons of rice. The actual export levels are as follows:
NE	4.70	3.20	0.20	1.30	
C	4.30	2.40	0.15	1.75	
S	0.80	0.90	0.05	-0.15	
					1965 — 1.89 million tons 1966 — 1.51 million tons 1967 — 0.96 million tons First six months
Total Estimate Whole Kingdom	13.50	8.50	0.50	4.50	

[a] Source of basic data: National Statistical Office. Thailand.
[b] 0.65 million tons represent the glutinous variety while 3.35 million tons refer to the non-glutinous.

Table 1.2. FOOD BALANCE SHEET. PHILIPPINES, 1973
(Estimates of Availabilities)

Food Groups	*Kg. per year*	*Gr. per year*	*Calories per day*	*Protein Gr./day*	*Fat Gr./day*
I. Cereals (4)	134.3	368.2	1,348	29.4	2.7
II. Roots & Tubers (6)	30.5	83.7	88	0.6	0.2
III. Sugar & Syrup (3)	18.4	50.3	194	—	—
IV. Pulses (nuts), etc. (10)	4.2	11.6	22	0.6	1.2
V. Vegetables (8)	30.2	82.9	22	1.2	0.2
VI. Fruits (8)	40.2	109.8	64	0.6	0.4
VII. Meat (3)	17.0	46.6	113	7.9	9.1
VIII. Milk & Milk Products (7)	14.0	38.2	26	1.3	1.5
IX. Eggs (3)	3.7	10.1	15	1.2	1.1
X. Fish & Marine Products	40.0	109.6	69	10.7	2.4
Fresh fish	34.0	93.2	51	8.7	1.6
Canned fish Salted dried, smoke Crustaceans Mollusks Others	6.0	16.4	18	2.0	0.8
XI. Fats & Oils	4.4	12.0	102	—	11.9
XII. Miscellaneous	26.2	72.0	46	0.9	0.3
Total	363.1	995.0	2,109	54.4	31.0

Source of Data. NEDA Food Balance Sheet Series. No. 3, NEDA, Manila. 1975.
The FAO descriptions of items under X. Fish and Marine Products may differ with those used by each country.

the DMCs in terms of local currency and at current prices, the PAA shows (a) values of gross agricultural products (agricultural goods, livestocks, fishery products, forestry products, own-account capital formation and change in stocks), (b) values of intermediate products used for agricultural production (agricultural goods, agricultural services and non-agricultural commodities), and (c) the value of net indirect taxes. By deducting (b) and (c) from (a); the Gross Domestic Product (GDP) at factor cost for the agricultural sector is obtained. If we deduct from GDP, the "provision for consumption of fixed capital", we derive **Net Domestic Product** (NDP) at factor cost which is again divided into factor incomes of "compensation of employees" and "operation surplus" (see Table 1.3).

13. On the basis of the foregoing analysis, the concepts and procedures employed by the PAA for deriving value added such as GDP, NDP and producers values and at factor cost appear to be consistent with the UN System of National Accounts (SNA). PAA is useful for the study of gross production, cost structure, input-output relationship, value-added, factor income, indirect taxes, capital consumption, etc. for the agricultural sector. The items in the format shown in Table 1.3 may be revised for clarity of presentation. For example, "change of stocks" should be covered in various items of products. Thus, item 3.3 should refer to "own-account fixed capital formation" instead of "own-account capital formation and change in stocks." "6.1 Indirect Taxes" and "6.2 Subsidies" should not be regarded as sub-items of "6. GDP at producers' values." "7.1 Provision for consumption of fixed capital" also should not be treated as sub-item of "7. GDP at approximate factor cost." Furthermore, it would be more complete and useful if "Expenditure on GDP of Agriculture" is added. Accordingly, a revised format of the PAA appearing in Table 1.4 is suggested.

14. The PAA for 19 DMCs with different periods as tabulated by FAO are as follows:

Group	Period	DMCs
I	1961-71	8 DMCs: Cambodia, India, Indonesia, Korea (Rep. of), Pakistan, Philippines, Thailand and Sri Lanka
II	1966-75	11 DMCs: Afghanistan, Bangladesh, Burma, Fiji, Gilbert Islands, Laos, Malaysia, Papua New Guinea, Solomon Islands, Tonga, Western Samoa.

While the original data are in terms of national currencies and are therefore not suitable for presentation, three tables showing the relationships among the main aggregates in percentage are derived for comparison (The Tables are not shown). Sources of data used in these PAAs were those from FAO Production Yearbook, UN Monthly Bulletin of Statistics,

Table 1.3
ECONOMIC ACCOUNTS FOR AGRICULTURE —
(A) PRODUCTION ACCOUNT

(Holding concept of agriculture — Commodity approach)

1. The Harvest production of agricultural goods
   1.1 Crops
   1.2 Livestock products

2. Gross output of livestock

3. Gross output of non-agricultural goods
   3.1 Fishery products on holdings
   3.2 Forestry products on holdings
   3.3 Own-account capital formation and change in stocks

4. Gross gross output (1+2+3)

5. Use of agricultural and non-agricultural commodities for production
   5.1 Total use of agricultural goods
      5.1.1 Seed, etc.
      5.1.2 Feed
      5.1.3 Other
      5.1.4 Waste on holdings in transport and storage
   5.2 Intermediate consumption of agricultural services
   5.3 Intermediate consumption of non-agricultural commodities
      5.3.1 Fertilizers
      5.3.2 Pesticides
      5.3.3 Fuel, Lubricants, electricity and other energy
      5.3.4 Maintenance and minor repairs of fixed capital assets
      5.3.5 Irrigation costs
      5.3.6 Rental of machinery and equipment
      5.3.7 Overhead and other miscellaneous costs

6. Gross domestic product at producers' values (4-5)
   6.1 Indirect taxes (—)
   6.2 Subsidies (+)

7. Gross domestic product at approximate factor values (6—6.1+6.2)
   7.1 Provision for consumption of fixed capital (—)

8. Net domestic product at approximate factor values (7—7.1)
   8.1 Compensation of Employees
   8.2 Operating surplus

9. Gross domestic product of agriculture at producers' values
   (UN Yearbook of NAS) 1974

Table 1.4 SUGGESTED FORMAT OF PRODUCTION ACCOUNT FOR AGRICULTURE

1. Gross Product
   - 1.1 The Harvest production of agricultural goods
     - 1.1.1 Crops
     - 1.1.2 Livestock products
   - 1.2 Gross output of livestock
   - 1.3 Gross output of non-agricultural goods
     - 1.3.1 Fishery products on holdings
     - 1.3.2 Forestry products on holdings
     - 1.3.3 Own-account fixed capital formation

2. Intermediate Consumption
   - 2.1 Use of agricultural goods
     - 2.1.1 Seed, etc.
     - 2.1.2 Feed
     - 2.1.3 Other
     - 2.1.4 Waste on holdings in transport and storage
   - 2.2 Use of agricultural services
   - 2.3 Use of non-agricultural commodities
     - 2.3.1 Fertilizers
     - 2.3.2 Pesticides
     - 2.3.3 Fuel, lubricants, electricity and other energy
     - 2.3.4 Maintenance and minor repairs of fixed capital assets
     - 2.3.5 Irrigation costs
     - 2.3.6 Rental of machinery and equipment
     - 2.3.7 Overhead and other miscellaneous costs

3. Gross domestic product at producers' values (1-2)

4. Indirect taxes

5. Subsidies

6. Gross domestic product at approximate factor values (3-4+5)

7. Provision for consumption of fixed capital

8. Net domestic product at approximate factor values (6-7)
   - 8.1 Compensation of employees
   - 8.2 Operating surplus

9. Expenditure on gross domestic product at producers' values (9-8)
   - 9.1 Consumption expenditure
     - Food
     - Clothing
     - Housing
     - Transportation and Communication
     - Education and Recreation
     - Others
   - 9.2 Savings

IMF International Financial Statistics and many other national sources. The resultant estimates are not consistent with those reported in the UN Yearbook of Naiional Accounts Statistics.

15. Furthermore, there are still data gaps in many items in the accounts. Foremost are those on gross output of non-agricultural goods including own account fixed capital formation, intermediate consumption of agricultural services, compensation of employees, operating surplus, etc. These data gaps added to the degree of incompleteness of the accounts. The PAA could be regarded as a good starting point as framework for agricultural and fishery production statistics but there are many areas and sub-sectors in the accounts which require improvement. Capital Formation in Agriculture (CFA) means fixed capital formation and increase in stocks for the agricultural and other sector.

16. **Use of Fixed Ratio in PAA.**[1] A common usage in the GNP estimation is the assumption of a fixed value added ratio (v. a. r.) [2] in some or in many sectors of the production account. This fixed ratio may have been derived from a census year or from a survey conducted several years previously. The use of a fixed ratio to measure year-to-year changes may produce dubious results especially if the ratio is a function of total output (patterns), technology, capital intensity, relative wages, interests, profit rates and prices. For instance, in the agricultural sector, it is observed that as productivity rises due to the use of advanced technology and other technical inputs, the level of the v.a.r. slowly declines from, say, a high of 0.95 under subsistence agriculture to a low of 0.60 to 0.70 with highly commercialized farming. Climatic and other factors may affect total output and/or technical input patterns. An assumption of a fixed ratio for a given crop may understate or overstate the value added contribution depending on which of these factors predominate in a given year. Because of this situation, the analytical studies based on fixed ratios and the resultant policy decisions based on these analyses may be quite misleading. (See Chart 1.1 and Table 1.5 as examples.) Future plan of work for standardizing and developing production accounts for agriculture (PAA) in the DMCs of the Asian region should also give special attention on the quality of basic statistics used. This quality requirement should also be applied

[1] Oñate, B. T. Improvement of the Quality of Current Statistics in the Asian Region. ADB Occasional Papers #5, May 1971. p. 8. Revised 1977.

[2] Gross Value Added at market prices Equals Total Output Minus Intermediate Products.

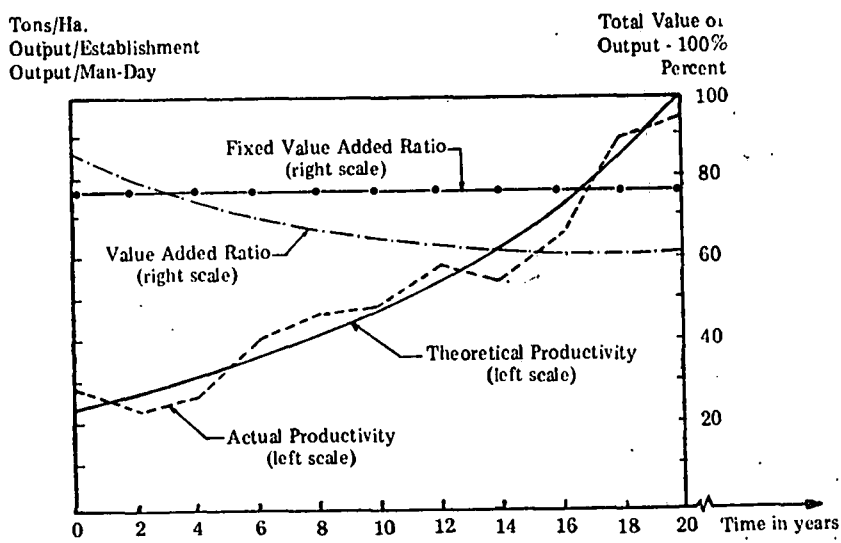
to the basic statistics derived from the cost of production. farm management, farm household economy and similar surveys in agricultural or rural area development projects financed from national, bilateral and/or multi-lateral resources.

17. Some concerns of fishery development projects are presented in a paper by Oñate (1977) [1] which include: a) sensitivity of fishery development projects, b) value added, c) grant element, d) social impacts, and e) monitoring the concerns. In addition to these data on GVA and NVA ratios, additional data in Table 1.6 on pond (pen) cultures indicate the ranges of these estimated ratios by species and by country. The ranges of these ratios are given below.

Range of Ratio	GVA Ratio	NVA Ratio
Low	23.7	22.1
High	66.7	65.1

Whether low value added ratio (as obtained in eel farming in Taiwan) is related to highly commercialized or high technology farms and high VAR (as obtained from catfish ponds in Thailand) is related to near subsistence (low technology)

Chart 1.1 Use of Fixed Ratio in PAA



[1] Oñate, B. T. Socio-Economic Concerns of Fishery Development Projects. Agricultural Economics Societies in Southeast Asia (AESSEA) Conference. Iloilo City, Philippines. November 1977.

Table 1.5

VALUE ADDED RATIOS OF SELECTED AGRICULTURAL CROPS
Philippine National Accounts: 1955/1961-1970 *

Crop	1955	1961 to 1970
Palay (Padi)	0.95	0.9296
Corn	.98	.9646
Pineapple	.98	.7350
Coconut (and Copra)	.81	.9994
Sugar Cane		.8287

* Source: National Economic Council (now NEDA) Philippines, 1971. Recent workshops on National Accounts have placed emphasis toward improvements of these ratios.

farming could be studied in depth. These analytical technology studies will definitely improve the Production Accounts statistics in the Fishery sector of a given DMC.

4. Index of Agricultural and Food Production (IAFP)

18. The index of agricultural and food production is one of the most important macro-statistics generated by the statistical system in food and agriculture. With population data, the index of per capita production will show whether agricultural and food availabilities on a per capita basis are improving or not. Similarly, the index of prices received and the index of prices paid by farmers will indicate the so-called terms of trade of the farmers vis-a-vis the non-farm sector. The weights of the corresponding components in terms of output or quantity of these indices are obtained, by and large, from the Census of Agriculture (CA). The prices are either obtained from the CA or from independent price collection system in agriculture or outside of agriculture.

Table 1.6

ILLUSTRATIVE EXAMPLES OF ESTIMATES OF GVA AND NVA FROM FISH CULTURES BY SPECIES BY COUNTRY[1]

Culture/Country	Total Output (1)	Intermediate Product (2)	Gross Product (Gross Value Added) (3) = (1) - (2)	Depre-ciation (4)	Net Product (Net Value Added) (5) = (3) - (4)	Ratio to Total Output (%) GVA	NVA
Grey Mullet in a 8-Ha. Pond, Hong Kong (000 US$)	90	41	48	10	38	53.9	42.8
Common Carp & Chinese Carp in a 0.61 Ha., Malaysia (1970) (M$)	692	239	453	30	423	65.5	61.1
Eel Farm in Taiwan, (1972) (000 US$)	70	53	17	1	15	23.7	22.1
Catfish in Thailand (1975) (Mn Baht)							
Farm A	264	179	85	4	82	32.3	30.9
Farm B	256	85	170	4	166	66.7	65.1
Farm C	41	18	23	2	21	55.9	51.8
Farm D	130	51	79	1	78	60.4	59.6
Common Carp in 3 Ha. Pond in Japan (1970) (000 Yen)	3894	2094	1800	30	1770	46.2	45.4

[1] Source: Asian Fishing and Shipping Magazine, Vol. 3, No. 1, 1977.
Business Trends, Philippines.

B. Micro-Statistics

1. Decennial Censuses of Agriculture (DCA or CA)

19. The 1980 World Census Program of Agriculture will consider the following sections:

0 - Holding, holder, tenure and type of holding
1 - Land utilization
2 - Crops
3 - Livestock and poultry
4 - Employment in agriculture
5 - Farm population
6 - Agricultural power and machinery and general transport facilities
7 - Irrigation and drainage
8 - Fertilizers and soil dressings
9 - Wood and fishery products (depends on DMCs)
10 - Association of agricultural holdings with other industries

The 1980 Census plans of DMCs in the Asian Region are presently under way and it is anticipated that there will be active regional participation to this World Census Program. The planning and execution of censuses need the help of expertise from all sectors, research and related agencies and the statistical system. A separate Fishery Census could be conducted as a component of the Censuses of Population and Agriculture.

2. Household Consumption Survey (HCS)

20. This statistical endeavor will estimate the incidence of hunger and malnutrition through the information gathered on the distribution of households in terms of intake of calories and nutrients. There is uneven distribution of the overall food supply from FBS due to factors such as incomes, rural/urban differential, customs, climate, etc. These details are shown in the results of the HCS. Again, Food Composition Table (FCT) is needed in the conversion of food into calories and nutrients. The role of research centers in filling the gaps for a sound statistical system in food and agriculture is illustrated not only in the development of methods for the collection of HCS data but also in terms of the development of statistical efficiency of the sampling framework such as size of sample households, number and location of sample areas and related statistical

variables. There is a need for strengthening to a considerable degree the quality of data in the Fishery sector of the FBS, HCS and the analysis used in the FCT of each DMC.

3. National Farm Survey (NFS) or General Economic Survey of Agriculture (GESA)

21. The economic aspects of agricultural holdings such as income and its components, expenditures and general farm management indicators are not in general available from censuses or current surveys. Thus, there is a need for national farm surveys (NFS) or general economic survey of agriculture (GESA).[1] Some form of integration and/or coordination may have to be devised in order that these requirements could be considered in a general systems approach to the data collection and production in food and agriculture. The types of information to be collected by the GESA should relate to the structural, operational and economic aspects of agricultural holdings and should include: (a) geographical features of the holdings and availability of irrigation facilities, (b) distance of markets, (c) types of farm and cropping patterns, (d) size of holdings, scale of operation, degree of mechanization, fixed assets, flowing assets, etc., (e) cost of operation and its breakdown, (f) inputs-produced within the farm, within the agricultural sector and bought from the non-agricultural sector, (g) products and by-products, quantities consumed or used as inputs, (h) income and its components by factors of production, (i) employment, number actively engaged on farm and number subsisting on farm, (j) cost of production of principal crops. A form of integration and/or coordination in the collection of statistics is therefore indicated. At this stage, it would be worthwhile for the DMCs to study the possibilities of utilizing already existing national sample survey of households as possible vehicle of current agricultural statistics, household food consumption, GESA and the various requirements of the Food Balance Sheets (FBS) and various components of the Production Accounts in Agriculture (PAA).

C. Analytical Studies from Research Institutions

22. Pertinent statistics on food and agriculture in the DMCs of the Region are usually collected either as by-product of ad-

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[1] National Farm Survey or General Economic Survey of Agriculture. Asia and the Far East Commission on Agricultural Statistics. Third Session. Bangkok, Thailand. 1970.

ministrative functions, directly by statistical units of some ministries or a combination of these two methods or sources. There are distinct advantages from the standpoint of objectivity, integrity and independence that through the process of transitional stages, the primary responsibility of the collection, tabulation and publication of statistical information be lodged on the shoulders of statistical agencies or statistical units of subject matter or line agencies. Even with this suggested future framework, there are many areas of statistical development where research institutions such as experiment stations, research institutes, food and nutrition research centers, research units of universities, and similar agencies may contribute to the establishment of a sound statistical system in food and agriculture. Also, this cooperation will be important since the regular statistical agencies are not necessarily geared to organize and maintain a research and development (R & D) section within the statistical unit. Some of these areas of common concerns are described.

1. Input/Output Relations

23. Agricultural experiment stations must necessarily be the centers of agricultural development in the DMCs of the Region.[1] Modern varieties (MV), new techniques and chemical-hydro-mechanical innovations and information on their economic feasibilities and efficiencies must emanate from research stations. As these new technologies are initially applied to the surrounding areas, basic data on input-output relationships are generated. The research or experiment station and the farmer's fields are two sources of input-output data which may be consolidated for the planning and development of agricultural regions or larger areas.[2] These input-output models can also be used as basic framework in assessing the direction of development. The response of crops to fertilizer applications is a good example of this type of I/O models. Statistical competence must also be developed in these areas for agricultural planning and rural development.

2. Research on Methodology and Other Components

24. In addition, the statistical unit in these stations can develop new techniques in objective methods of sampling for

[1] Oñate, B. T. Statistical Framework for Agricultural Planning and Development. Asian Agricultural Survey. Asian Development Bank, pp. 683-693. September 1969.

[2] Pilot areas are usually incorporated into the agricultural area development schemes funded by national, bilateral and/or multilateral funds.

crops, livestock, fishery, forestry and household consumption data. Many important statistical components in the preparation of the Food Balance Sheet (FBS) can be developed and maintained in these stations as for example those on seeding and conversion rates, waste and losses in quantity and in nutrient levels during harvesting, storing and warehousing, marketing and cooking. Other series on production, imports and exports, stock positions and population can be handled by the major statistical collecting agencies in agriculture. The Food Composition Tables (FCT) are prepared by the Food and/or Nutrition Research Centers or Institutes in most DMCs. The research agencies can cooperate with the central statistical collecting agencies and the former can act as the centers of these studies. Also, interviewing in-depth can be more effective in obtaining total production than crop-cutting with an area survey. The approach to use will depend upon the particular policy to be implemented. Each component such as landlord share, tenant share, seed, harvester share, payment of debts, gleanings, gifts, biases in sharing, etc. can be accounted for. This technique can account for most if not all of the harvest or output. Such statistical research will be in addition to the advice, consultation and instructional responsibilities of the statistical component in these research stations. An Institute of Agricultural Statistics Research (IASR) could be organized within the DMC's Council for Agricultural and Resource Research [1] for the initiation of an integrated and coordinated approach to statistical research in food and agriculture.

3. Estimates from Cooperative Regional Research

25. Cooperative trials in farmer's fields or fishery holdings can be designed properly so that the results can be integrated with the experiments conducted over several places or locations and over time. Also, one can integrate into these regional trials studies for objective assessments of the damage due to insects, pests and weather.[2] While crop-cutting is usually referred to as the "objective" method, there are many technical problems which must be solved before this method can be used in larger areas such as the sub-region or province within a given country. The biases connected with the size and shape of cut by crop, the number of parcels or paddies to sample within a farm, moisture contents and the correlations between factors must be thoroughly studied. Also, the field staff must be trained

[1] An IASR is a component of the Indian Council for Agricultural Research.

[2] Oñate, B. T. Statistics in Southeast Asian Agriculture. SEARCA. November 1976.

on the many technical aspects of the crop-cutting survey. These requirements for crop-cutting are more rigid than those for the interview survey method.

26. The statistical component of projects or programs in agricultural area development schemes must be kept in mind. The application of the objective survey technique and the interview method with special reference to farm management information must also consider the interplay of the policies toward increase of total production and increasing productivity under a situation of limited land/man, land/water ratio. Again, this phase of providing a statistical framework can be considered in the light of the cooperation of subject matter specialists in the research stations and the statistical system in food and agriculture in general.

4. Systems Approach in the Improvement of Food and Agriculture Statistics

27. Efficient statistical operations are fundamental to a country's efforts in producing statistics with the qualities of validity and reliability, consistency and timeliness and in the desired form useful and relevant to consumer.[1] To be valid and precise, the data collected must have as little bias as possible and that the estimates must possess the desired level of precision. Thus, in a simplified form, the requirements are:

(a) X(collected) - X(actual) = zero or as small as possible, i.e. the bias is small or estimate is accurate.

(b) CV (X = estimator) must be small, say, 5 per cent or less = precision or reliability is high.

To accomplish these feats will require the cooperation of the administrator, statistician, supervisor and the field staff including the interviewers. The research and development (R & D) efforts must necessarily follow a systems approach in order to achieve the objective of improvement in the collection of agricultural statistics. This approach was illustrated during the ASEAN Workshop on the Improvement of Agricultural Statistics (see Table 1.7) and described also in the National Se-

[1] Oñate, B. T. The Role of Statistics in Philippine Development. The Philippine Agriculturist 49 (6-7), pp. 450-498. 1965.

Table 1.7. A Possible System of Rice (and Agricultural) Statistics (Replace Rice by Fish and Restructure)

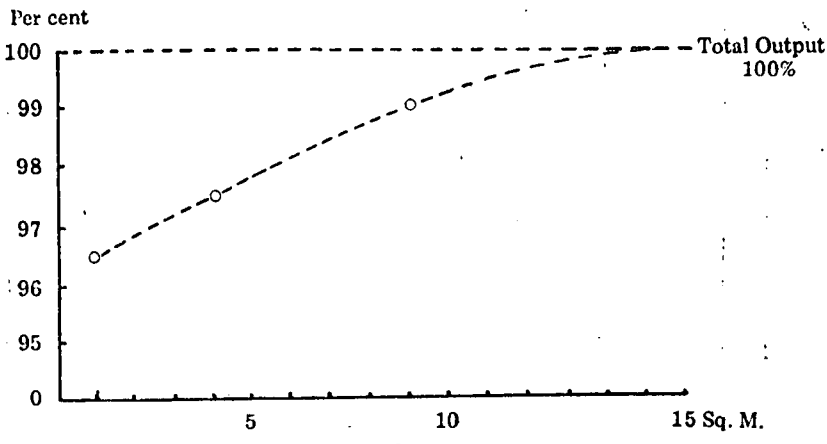
Farm Level	Farm/Outside Farm	Farm/Outside Farm	National or Regional	
Production: Paddy; Farmers' (Fishery Holdings); Other Components	Paddy → Rice (Fish By-Products) Conversion Ratio Rice & By-Products (Fish & By-Products)	Paddy and Rice (Fish By-Products) Households Domestic Trade External Trade Mills Warehouses Industry Feeds Transport	Household Food Consumption Surveys Consumer Price Index: Weight of Rice (Fish) as a Commodity from Income/Expenditure Surveys	Food (Rice or Fish) Balance Sheet Available Supplies = changes in stocks + production + imports exports Domestic utilization = feed + seed + waste + processing + final consumption (food & non-food)
Area: Sown / Harvested; Main (T: HYV, Others; B); Secondary (T: HYV, Others; B: HYV, Others); Lowland, irrigated; Lowland, not-irrigated; Upland				
Yield (Productivity) Same as Area classification			Population Data	National Accounts
Inputs Seeding Rates Fertilizer, Insecticide, etc. Water, Capital Equipment, Credit Land / Labor: Tenancy Prices Received Prices Paid	Prices (wholesale) (imputed) Rice By-Products	Prices Wholesale Retail	Relevant data from Research and Experiment Stations and National Regional Cooperative Yield Trials. Findings from Agricultural Colleges and Universities. International Price	

T – transplanted
B – broadcast
HYV – high yielding varieties

minar on Uses of Census Information in Thailand last March 1977 and which will need also research findings about crop-cuts, memory biases and the probing techniques to obtain all the components of the harvest or output. The proposed CA in Thailand for 1978 will not collect output data of important export crops such as rice, maize, tapioca, jute and sugar cane. It is expected that relatively good data on hectarage will be obtained and on the basis of some stratification criteria, appropriate crop cuts will be obtained which could then be used with the area data to generate output figures. Thus,

$$\text{Output} = \text{Area} \times \text{Productivity (from crop cuts)}$$

28. **Crop-cutting.** Crop-cutting is a very sophisticated technique which requires not only highly trained technical personnel but also certain special equipment. A knowledge of the interactions of size and shape of cuts, area and output must be available before a particular size and shape of cut used to derive Output from (Area x Productivity) could be fully assessed. The findings by Oñate (1970) indicated that as the size of a square cut approaches 16 sq.m. then the bias of the cut vanishes.[1] A square cut is more convenient to use in the field specially if the paddy field is not planted in a uniform manner. Graphically, the bias will assume the following form:



[1] Oñate, B. T. New Findings in the Collection of Agricultural Statistics. FAO Commission on Agricultural Statistics for Asia and the Far East. Periodic Report No. 11, 1970.

Bias by Size of Cut

The kind of crop and type of culture will definitely have bearings on this interaction of size and shape of cut and its relation to total output.

29. **Memory Bias.** Due to many technical and field difficulties of applying crop-cutting, many DMCs will naturally apply the interview or the enumeration method in obtaining output data. Again, the policy of increase in total output or increase in productivity will dictate the method to be applied in the field. There are memory biases associated with this interview approach. The author[1] reported that the interview yield conducted six to nine months after harvest from 28 sample farms in two villages in Laguna, Philippines was about three per cent understated as compared to the actual yield. This result implies that memory biases will creep into this statistical collection after a lapse of time, say, six or more months after harvest. In the case of the censuses, the lapse will be a maximum of about 12 months or one year. For Thailand, the reference period will be 1 April 1977 to 31 March 1978 and the collection period (census date) will be about four weeks starting from 1 April 1978. Thus, the holder or farmer will apparently remember the large transactions such as the shares of the landlord, tenant and harvester and the amount set aside for seeds but will slowly forget smaller items such as expenses for irrigation fees and other accounts payable, amounts given to relative and friends, gleaning and others.

30. **Probing Techniques.** A probing technique becomes necessary to account for all the component. A complete accounting of all components of rice production was attempted during the 1966 crop year in the province of Laguna. The results are shown in Table 1.8. If expenses, amount given to friends and relatives, gleaning and the heaping share or "paulo" are not accounted for by deeper probing during the interview period, then it is estimated that there will be an under reporting of production by 4.1 per cent. The "paulo" will account for one per cent of overall prodution. Thus, if 99 million cavans were reported minus the "paulo", then another million cavans must be added to the 99 million in order to account for this component. A more efficient statistical operation will be necessary in order that these components are accounted for by the

[1] Oñate, B. T. Non-sampling Errors in Philippine Field Surveys. Philippine Statistician 6(2). 1957.

Table 1.8

COMPONENTS OF RICE PRODUCTION AND CUMULATIVE PERCENT DISTRIBUTION BY CULTURE, LAGUNA, CROP YEAR 1966

(This could be applied to Fishery Research and Development)

Components of Rice Production in Cavans and Cumulative Percent Distribution

Culture [a]	Tenant Share (1)	Land-lord Share (2)	Har-vester Share (3)	Seeds (4)	Expen-ses [b] (5)	Relatives & Friends [c] (6)	Gleaning (7)	"Paulo" (8)	Total Produc-tion [d] (ca.)
I. 1st crop, L, I									
Production (ca.)	13928	13155	5217	525	511	170	184	288	33978
Cumulative dist'n.	41.0	79.7	95.1	96.6	98.1	98.6	99.2	100.0	
II. 2nd crop, L, I									
Production (ca.)	6878	4969	2300	246	177	84	131	222	15007
Cumulative dist'n.	45.8	78.9	94.2	95.8	97.0	97.6	98.5	100.0	
III. 1st crop, L, NI									
Production (ca.)	2435	2389	985	127	369	72	37	60	6474
Cumulative dist'n.	37.6	74.5	89.7	91.7	97.4	98.5	99.1	100.0	
IV. 2nd crop, L, NI									
Production (ca.)	29	11	5	0.75	0.25	—	—	—	46
Cumulative dist'n.	63.0	86.9	97.8	99.4	100.0				
V. Upland									
Production (ca.)	1632	334	569	41	—	8	26	22	2632
Cumulative dist'n.	62.0	74.7	96.3	97.9	97.9	98.2	99.2	100.0	
Prov. Total Prod'n (ca.)	24902	20858	9076	940	1057	334	378	592	58137
Cumulative dist'n.	42.8	78.7	94.3	95.9	97.7	98.3	99.0	100.0	

[a] L means lowland; I, irrigated; and NI, non-irrigated.
[b] Includes irrigation fees and other accounts payable.
[c] Includes weeder and thresher shares.
[d] Does not include standing crop.

survey. Analytical studies from research institutions are therefore indispensable components of the statistical system in food and agriculture. Similar probing could be applied to fishery research and development.

31. Improved Data Collection System. The Philippines estimated "palay" or rough rich production in crop year 1970 at 5.24 million metric tons (about 119 million sacks of 44 kilograms). This production represents an increase of about 18 per cent over that of the production of 4.4 million metric tons (101 million sacks) in crop year 1969. The estimated area under this crop in 1970 was 3.1 million hectares as compared to 3.3 million hectares in crop year 1969, a decrease of about 7 per cent. Thus, the yield per hectare would be 1.68 tons/ha. in 1970 as against 1.33 tons/ha. in 1969, an increase of about 25 per cent in productivity — a very splendid achievement. Information from the Philippines Bureau of Agricultural Economics seem to indicate that during crop year 1970, the Bureau implemented new statistical programs for the improvement of data collection. These efforts consisted in the use of better planned questionnaire, well-trained personnel and a better supervised field force. The probing technique resulting from these efforts accounted for a portion of the apparent increase in total and per hectare output.[1] On the other hand, some studies indicate that there may be possible overstatement of areas (or yields) reported, specially those obtained from small fields, say, 2 to 3 ha. in area.[2] The net effect of better and improved data collection would be an increase in production and probably a decrease in the area reported. While the same farms may have been enumerated, the concepts of "space" differed quite substantially in terms of reporting both production and area. If two periods of time are involved, the total yields would reflect the interaction of such factors as the methods of statistical collection, the prevailing climatic conditions, and program efforts. The analysis of the effects of the developmental ef-

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[1] Objective studies seem to indicate that previous "palay" production was understated by amounts ranging from 5 to 20 per cent of the reported figure. See **New Findings in the Collection of Agricultural Statistics.** FAO Commission on Agricultural Statistics for Asia and the Far East. Periodic Report No. 11, pp. 1-7, April 1970.

[2] One of these studies is entitled Response Bias in the Collection of Rice Statistics. The Philippine Agriculturist, Vol. LII, February-March 1968, pp. 602-613. Of 68 sample farms in 17 villages, the interview method was on the average of 5.6 per cent higher than actual sown area. Large positive biases were found for farms larger than 2 hectares. The Post Evaluation Survey (PES) of the Philippine Agricultural Census of 1971 will provide more evidences about the nature and direction of these biases.

forts would be totally misleading if the possible effects of improved data collection methods are not fully considered in the evaluation.

D. Statistical Monitoring of Rural Area Development Projects for Small Farmers

32. It may be worthwhile to take a look at some leading indicators which have been derived in the appraisal of projects from agriculture, fishing, the agro-based and the non-agro based industries. These indicators include the length of the project life in years, the benefit/cost (B/C) ratios and the economic internal rate of return (IRR) in per cent. These results are given in Table 1.9 for about 100 projects of ADB.

Table 1.9 INDICATORS OF SECTORAL PROJECTS *

Sector/ Project	*Project Life Years*	*B/C*	*IRR (%)*
Agricultural Area Development	10 - 56	1.6 to 18.5	8.5 to 18.3
Fishing	10 - 15	1.6 to 4.9	11.1 to 42.1
Agro-Based Industries	15 - 25	1.7 to 6.0	13.9 to 24.7
Non-Agro Based Industries	14 - 17	3.1 to 8.5	21.8 to 54.1

* Source: ADB Appraisal Reports. Various years.

33. These indicators show that for agricultural area development schemes, the project life could be relatively long extending from 10 to 56 years. On the other hand, the B/C ratio could be very wide (1.6 to 18.5) indicating very wide variations in the benefit streams (total B) since C could be easily monitored through standard accounting procedures. This situation will show that agricultural area development projects are more sensitive to changes in the benefit streams since the slope or rate of change in IRR on B/C may be small but the B streams are subject to more error (Oñate 1976).[1] The IRR is also re-

[1] Oñate, B. T. Sensitivity of ADB Projects. See "Statistical Framework in Area Development Projects for Small Farmers", presented at the National Workshop on Uses of Census Information. Chiangmai, Thailand. March 1977.

latively lower as compared to those exhibited by Fishing and the Industries, both agro-based and non-agro based.

34. Development or Progress is not equivalent to Financial Flows. On the other hand, Financial Flows do not necessarily mean Development or Progress in the economic sector where these investments are applied. Development or Progress can be demonstrated or shown by objective and unbiased indicators obtained through a sound statistical monitoring system. Man is the concern of development. If so, the improvement of the quality of life of the targeted socially disrupted groups (poor farmers/urban slum dwellers) or beneficiaries must be the main concern of development. IBRD, ADB and other lending institutions have shown number of loans or projects and the amounts of loans (or financial flows) but have not fully and unbiasedly demonstrated that these financial flows have indeed brought about development or progress in terms of the improvement of the quality of life and the improvement of the quality of the poorest of the poor in developing Asia. In order to fully and unbiasedly demonstrate this progress, a monitoring system must therefore be instituted as a component of the Project Design.[1]

Phases in Agricultural Research and Rural Development

35. Agricultural and natural resources research can not be confined into one short phase. It must consist of different phases depending on the stage of the research processes, the level of local control applied to the phase of research and the benefit (B) and Cost (C) ratios. The B/C ratio may be negligible in the early phase but may increase substantially at the later stage when research findings are applied to rural or agricultural area development schemes. The suggested phases of Agricultural Research and Rural Area Development are given in Table 1.10. Note that the local control requirement for experiments would be an important criterion. Also, the total project life would necessarily include a portion, if not all of the project life of rural area development scheme. At any rate, the trends could indicate an agreed upon cut-off period. Phases II and/or III could be by-passed but what is important is to

[1] Oñate, B. T. Indicators for Monitoring Rural Area Development Projects. Symposium on Programs for Rural Development, U.P. Los Banos, 1977; ESCAP Seminar on Statistics for Rural Development, New Delhi, 1978; SIAP Panel Discussion of Experts on Statistics for Integrated Rural Development, Tokyo, 1978.

Table 1.10. Phases of Agricultural Research and Rural Area Development

Phases	Stage	Productivity	Level of Local Control	Project Life (Years)	Benefit (Social-Economic)	Cost
I	Research Proper	VH	High (H) to Very High (VH)	3 - 5	$B_{I,i}$	$C_{I,i}$
II	Cooperative Tests	H	High (H)	1 - 3	$B_{II,i}$	$C_{II,i}$
III	Trials in Farmers' Fields (Fishery Holdings)	M	Medium (M)	1 - 2	$B_{III,i}$	$C_{III,i}$
IV	Rural Area (Fishery) Development Schemes	L	Low (L) or negligible	10 - 20	$B_{IV,i}$	$C_{IV,i}$
	Total			15 - 30	$\sum_{k,i} B_{k,i}$	$\sum_{k,i} C_{k,i}$

integrate a portion or part of Phase IV with Phase I in order to show whether the particular set of agricultural research development is economically feasible or that enough benefits are generated as a result of the research efforts. It is very important that the required statistical monitoring scheme could be established at an early phase so that objective estimates of productivity and other key indicators are made available at each phase beginning from the research proper (Phase I) and during the project life of rural area development schemes (Phase IV).

E. Inter-Sectoral Flows in the SSFA

36. This approach may be considered as a separate project or as part of the overall program for the entire system of identification, appraisal, post-evaluation and monitoring of agricultural and rural area development schemes for small farmers or fishery holders which are implemented through the use of funds from national and/or bilateral, regional or international financial development institutions. The intersectoral flows in the statistical system in food and agriculture (including fishery) are shown in Chart 1.2.

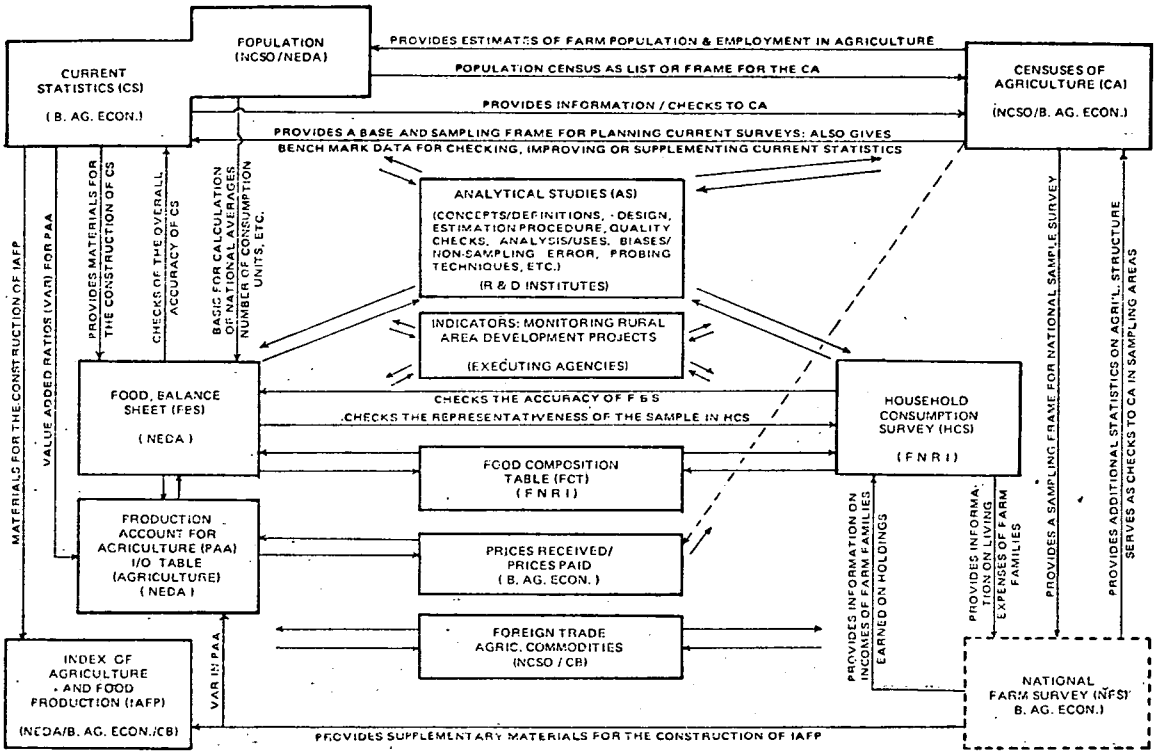
III. Statistical System in Industry (SSI)

A. Components of SSI: Correspondence with SSFA

37. Usually in the SSFA, data are collected from **farm holdings** through the farm households. In Industry, the set of required data is collected from **establishments** as the reporting and statistical unit. The NCSO 1972 census of Establishment defined an establishment as "an economic unit which engages, under a single ownership or control, i.e., under a single legal entity, in one or predominantly one kind of economic activity at a fixed single location, and having permanency of assets, such as goods for resale, materials, products, equipment, etc. in its premises during its operation." By our definition of Industry, all establishments engaged in the following economic activities are included such as manufacturing; mining and quarrying; construction; electricity, gas and water; and transport, storage and communication.

38. As shown in Chart 2, the components in the Statistical System in Industry (SSI) are almost similar to those in Food and Agriculture. It is therefore sufficient for the purpose of

CHART 1.2 STATISTICAL SYSTEM IN FOOD AND AGRICULTURE (SSFA): INTER SECTORAL FLOWS*



* NOTE: AGENCY RESPONSIBLE FOR COMPONENT IS INDICATED IN EACH CELL.

the dialogue to list the components in terms of a dichotomy as follows: a) macro or micro and b) basic or derived.

Components of the Statistical System in Industry (SSI)

Macro

Basic - Current Survey of Establishments

Derived - Commodity Balance Sheet
Input/Output
Value Added/National Accounts
[Flow-of-Funds Accounts]
Index of Industrial Production

Micro

Basic - Census of Establishments/Economic Census
Foreign Trade (Commodity)
Prices (Commodity)

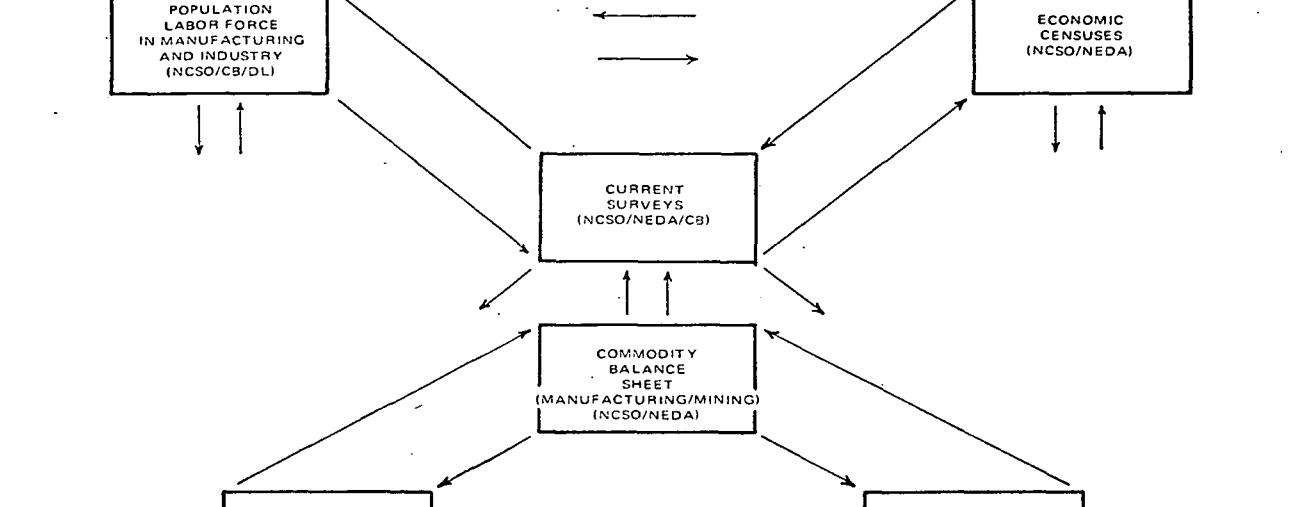
B. Research and Development

39. Research and Development (R&D) studies in the SSI are less than satisfactory. This is an area of major concern which is related toward improvement of the quality of data in Industry. Perhaps, a strong R & D unit could be established in NCSO/NEDA whose main function is to concern itself with analytical studies on data improvements. In addition, this R & D unit could provide the means for the satisfactory statistical monitoring of the progress of those establishments which receive funding from national, bilateral or multi-lateral financial institutions. These funding are referred to as sub-loans to selected establishments which constitute a sample from the Census of Establishment or the Economic Censuses. Project Benefit Monitoring could then become a component of Project Design in Industry and ultimately, as in the SSFA, as a part of the SSI.

C. Consolidation of Accounts

40. The Flow-of-Funds (FOF) Accounts, a joint project of NEDA and the Central Bank, are now available and would become a permanent feature of the statistical system. The data or indicators and concepts in the National Accounts, Input-Out-

CHART 2. COMPONENTS OF THE STATISTICAL PROGRAMS IN MANUFACTURING AND INDUSTRY



B. T. OÑATE
April 1978

put Tables and in the Flow-of-Funds Accounts may not yet be in complete agreement but it could be shown that these three accounts could be consolidated [1], [2] into an integrated whole under the framework of the UN System of National Accounts (SNA). As indicated in previous PSA Annual Conferences, the Sectoral Balance Sheets and National Wealth Accounts could be developed and added to these three accounts in order to complete the economic accounting structure of the Philippine economy. Of course, the other dimension of statistical development is the new area of Social Accounts which could be a topic of future PSA Conferences.

IV. Dialogue Between Producers and Users of Development Indicators

41. For each of the two Statistical Systems, two papers will be presented by the producers side. These papers will deal on concepts and definitions, coverage and scope, and details of data contents. The strengths and limitations of data generated will also be highlighted. The Users Side will respond with two papers indicating their versions of the quality of data and the gaps in the statistical system from the point of view of the users' needs. The dialogue should provide a forum which, hopefully, will generate programs for the improvement of current development indicators in Food and Agriculture and Industry. The dialogue could then continue on a more sustained, detailed and integrated basis. However, an important dimension of this dialogue is the understanding and cooperation of the respondents such as the holdings and the establishments. Without this cooperation, the data generated by the products which are passed on to the users will be of poor quality.

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[1] Saldua, A. R. and M. A. Superticioso, Jr. The Flow of Funds in the Philippines. Philippine Statistician. Vol. XXV. No. 1/2, June 1976. p. 31-52.

[2] Makanas, E. D. Towards an Integrated System of Economic Accounts. Phil. Stat. Vol. XXV. No. 1/2. June 1976. p. 54-70.

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AGRICULTURAL SAMPLE SURVEYS AND CENSUSES IN THE PHILIPPINE DATA SYSTEM

By JESUS C. ALIX *

Introduction

The arduous task of establishing a sound agricultural data system in many developing countries, including the Philippines, is beset with numerous problems, the foremost of which is the funding of statistical projects and activities. In the past, very low priority had been given to investment in this area. With more efforts now being exerted in planning development programs, the agricultural data system in the country has been receiving substantially more attention than before. For instance, the budget of the Bureau of Agricultural Economics in 1978 of about ₱21.0 million is almost five times that of 1974. However, while the BAEcon data system has improved over the years (as more funds became available for statistical operations), the system is still inadequate to provide more comprehensive and better quality output. Good data are costly to acquire and the data system can only be as good as the resources put into it.

The BAEcon statistical programs in the past, largely because of resource constraints, were focused mainly on rice and corn; hence, the system of collecting data on other crops and livestock almost completely rode with the data system on rice and corn. Furthermore, the data output of current agricultural surveys have been limited to the major agricultural characteristics (e.g. area and production of crops, livestock population, etc.) on the regional and national levels. In other words, the present data system in agriculture, because of the constraints mentioned above, cannot fully cater to the demands for information at the desired levels of planning which have seeped down from national to regional and provincial.

* Director, Bureau of Agricultural Economics.