WORKSHOP
ON
SUPPLY UTILIZATION ACCOUNTS
AND
FOOD BALANCE SHEETS

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THE PREPARATION OF SUPPLY/UTILIZATION ACCOUNTS (SUAs)

This paper presents several examples on the preparation of SUAs for a number of commodities of the crop, livestock and fishery sectors. It shows how, in the course of constructing SUAs, statistical data regarding production, trade and domestic utilization recorded in official sources can usefully be supplemented by ancillary and relevant information available elsewhere.

THE PREPARATION OF SUPPLY/UTILIZATION ACCOUNTS (SUAs)

I. INTRODUCTION

The statistical framework of SUAs has been developed with the aim of providing a useful statistical tool for the preparation, conduct and appraisal of government action aimed at developing and improving the agricultural and food sectors of national economies.

It has long been recognized that it is no longer meaningful to deal separately with individual statistical series, such as those for production and trade, etc. While the separate data series by themselves are no doubt important, it is equally important to establish the links between them. Statisticians must be in a position to work with flows and matrices rather than with individual sets of data alone. This implies that the statistics of any primary commodity must be traceable all the way from production and utilization to their final consumption. A set of Supply Utilization Accounts (SUA's) provides this path in terms of primary agricultural commodities, as a reversed path from derived commodities to primary ones.

The main advantage relies on the compactness of this set of SUA's, i.e. a smaller number of items.

Important changes were introduced recently by the FAO, Statistic Division in the methodology used to compile Supply Utilization Accounts (SUA's) and Food Balance Sheet (FBS). The most significant are the following:

Firstly, while in the past complete accounts, from production to food consumption, were prepared for important processed products, such as wheat flour, milled rice, beer, wine, sugar, soybean oil and cake, butter, cheese, etc, etc., now only imports and exports of processed products enter in the game.

Secondly, imports and exports of processed products are converted into primary products from which they derive taking into account their caloric content compared with the caloric content of the primary products. For example, if the caloric content of the primary product is 3300 calories per Kg., and the caloric content of one derived product is 3700calories, the "extraction rate" or "conversion factor" will be (3700x100)/3300=112%. If the caloric content of the primary product is 650 calories per Kg., and the caloric content of one derived product is 3850 calories per Kg., the "extraction rate" will be (3850x 100)/650=592%.

This paper presents several examples of how to prepare SUAs for commodities of the crop, livestock and fishery sectors and also how ancillary and relevant information available elsewhere can be used to supplement data from official sources of production and external trade in preparing the accounts.

The first step in this rather complex undertaking is to make a thorough search for figures and to compile them along with other information pertinent to the preparation of SUAs. Whereas preferably official sources are used to derive data regarding production, trade and utilization of food and agricultural commodities, in some cases whenever none of those official figures are available the information can be recovered by technical expertise such as marketing boards, commercial processing industries, extension workers, merchants, agricultural officers, transport enterprises, and the like.

To illustrate how to prepare SUAs, it is assumed the information listed in the Appendix A and B to this paper has been compiled using the sources described above. This information will form the basis for the construction of the individual accounts that are shown below.

The account of every commodity should be constructed taking care that the balance of the equation is always maintained. The basic elements (data) of the individual commodity account do not have any relation whatsoever to elements of the other accounts. Special attention must be paid dealing with processed commodities which must be converted onto primary ones.

II. EXAMPLES FOR THE CROP SECTOR

Commodity	Wheat
Area Harvested Ha	9,862,400
Yield Kg/Ha	2,622.12
Production quantity (tonnes)	25,860,400
Import quantity (tonnes)	872,871
Export quantity (tonnes)	16,411,407
Feed and seed Quantity (tonnes)	4,546,301
Other net uses* quantity (tonnes)	3,467,611
Food consumption Quantity (tonnes)	2,307,951

The data compiled for area, production, imports and exports are entered into the account. Yield has been calculated by dividing production by area. The quantity of wheat used for seeding purposes has been estimated by multiplying the seeding rate with the sown area of the subsequent year.

Feed is estimated on the basis of information available from the Ministry of Agriculture and commercial feed processing industries. Waste is based on information obtained from merchants in the cereal business, and is included in the Group called "Other net uses"(*). This group included also, industrial uses when applicable and stock changes when necessary to regulate the availability of food which is generally obtained as balance.

The main difference from the past is that now there is no more the account "processed", and that processed items must be included in the balance of its primary equivalent.

This means that only trade must be converted into primary terms, being the production of flour of wheat already included in the one of wheat. Thus by using conversion factors (also called extraction rates), it is easy to convert imports or exports onto wheat equivalents.

Observe that meanwhile in the past extraction rates should be composed back to the commodity tree, now each conversion factor refers to the primary one. This means that second or higher order derived products as for example pasta are no more converted onto flour of wheat and then to wheat, but directly onto wheat, as we are considering as input for each derived commodity always its primary one.

Within trade all the eventual food aids should be included by both donors and recipients.

Simple Commodities	Imports Quantity	Extraction Rates %	Wheat Imports Equivalent	Exports Quantity	Extraction Rates %	Wheat Exports Equivalent
Bran of Wheat	84,987.00	71.0	60,340.77	21,526.00	71.0	15,283.46
Bread	107,170.73	89.0	95,381.95	239,418.00	89.0	213,082.02
Breakfast Cereals	104,533.31	121.0	126,485.31	130,217.29	121.0	157,562.92
Flour of Wheat	57,141.00	122.0	69,712.02	239,490.00	122.0	292,177.80
Germ of Wheat	1,622.00	120.0	1,946.40	44,889.00	120.0	53,866.80
Gluten of Wheat	6,870.00	124.0	8,518.80	11,717.00	124.0	14,529.08
Macaroni	85,787.92	124.0	106,377.02	49,484.25	124.0	61,360.47
Pastry	105,385.82	122.0	128,570.70	96,465.00	122.0	117,687.30
Wafers	19,804.16	139.0	27,527.78	51,461.53	139.0	71,531.53
Wheat Starch	3,975.00	127.0	5,048.25	1,582.00	127.0	2,009.14
Wheat	13,888.00	100.0	13,888.00	15,118,679.00	100.0	15,118,679.00
Total	643,797.00					16,117,769.52

Complex Commodities	Imports Quantity	Extraction Rates %	Wheat Imports Equivalent	Exports Quantity	Extraction Rates %	Wheat Exports Equivalent
Glucose and Glucose syrup	179,134.00	19.3	34,572.86	130,175.04	58.7	76,412.75
Other Fructose and Syrup	109,089.00	65.6	71,562.38	73,821.00	88.8	65,553.05
Sugar Confectionery	85,762.80	16.3	13,979.34	171,997.02	46.8	80,494.61
Sweeteners, nec	85.62	16.0	13.70			
Undenatured ethyl alcohol, 80% vol or higher; ethyl alcohol and other spirits	159,074.00	59.9	95,285.33	29,346.00	85.9	25,208.21
Non-alcoholic beverages (excl. fruit or vegetable juices)	272,802.00	2.10	5,728.84	160,925.07	6.30	10,138.28
Undenatured ethyl alcohol, less than 80% vol; spirits, liqueurs and other spirituous beverages	41,097.49	19.3	7,931.82	85,925.00	41.70	35,830.73
Total	229,074.26					293,637.62

Total	Wheat Imports Equivalent	Wheat Exports Equivalent
Simple Commodities	643,797.00	16,117,769.52
Complex Commodities	229,074.26	293,637.62
General Total	872,871.26	16,411,407.14

In the new system the commodities are classified in simple and complex commodities. Trade data may include derived processed products which have been converted in primary product equivalent on the basis of their energy or caloric content; the technical conversion factors used are based in processed calories available in FAOSTAT for primary and processed commodities.

Commodity	Maize
Area Harvested Ha	1,072,300
Yield Kg/Ha	8,240
Production quantity (tonnes)	8,835,700
Import quantity (tonnes)	2,708,648
Export quantity (tonnes)	768,780
Feed and seed Quantity (tonnes)	8,993,210
Other net uses quantity (tonnes)	566,448
Food consumption Quantity (tonnes)	1,215,910

The data compiled for area, production, imports and exports are entered into the account. Yield has been calculated by dividing production by area. Feed, estimated on the basis of information available from the Ministry of Agriculture or National Statistical Office and commercial feed processing industries, waste based information obtained from merchants in the cereal business, and food obtained as balance, are the "most fluctuating" inputs for the SUA Model, which is a constrained control model, i.e. it minimizes an objective function essentially by varying food, feed, waste, other uses, meanwhile respecting the closed balance and other constraints.

Using conversion factors, it is easy to convert imports or exports onto maize equivalents.

It is important to mention that each conversion factor refers to the primary one. Within trade all the eventual food aids should be included by both donors and recipients.

For example in the case of maize the processed simple items related are: germ of maize, flour of maize, bran of maize, oil of maize, cake of maize, gluten of maize, starch of maize, beer of maize and popcorn.

Simple Commodities	Imports Quantity	Extraction Rates %	Maize Imports Equivalent	Exports Quantity	Extraction Rates %	Maize Exports Equivalent
Bran of Maize	36,340.00	69.0	25,074.60	30,088.00	69.0	20,760.72
Cake of Maize	364.00	22.0	80.08	93.00	22.0	20.46
Maize flour	69,454.00	111.0	77,093.94	43,351.00	111.0	48,119.61
Maize oil	26,920.29	271.0	72,953.99	23,951.00	271.0	64,907.21
Starch of Maize	36,048.76	117.0	42,177.05	44,799.00	117.0	52,414.83
Maize	2,227,018.03	100.0	2,227,018.03	430,310.27	100.0	430,310.27
Total			2,444,397.69			616,533.10

Complex Commodities	Imports Quantity	Extraction Rates %	Maize Imports Equivalent	Exports Quantity	Extraction Rates %	Maize Exports Equivalent
Sweeteners, nec	85.62	30.10	25.77			
Margarine	2,176.00	111.20	2,419.71	5,733.00	46.30	2,654.38
Glucose and Glucose syrup	179,134.00	63.80	114,287.49	130,175.04	21.70	28,247.98
Undenatured ethyl alcohol, less than 80% vol; spirits, liqueurs and other spirituous beverages	41,097.49	21.10	8,671.57	85,925.00	13.80	11,857.65
Animal or vegetable fats and oils, hydrogenated	63,415.96	138.40	87,767.69	99,282.00	77.10	76,546.42
Non-alcoholic beverages (excl. fruit or vegetable juices)	272,802.00	6.40	17,459.33	160,925.07	2.30	3,701.28
Sugar confectionery	85,762.80	39.20	33,619.02	171,997.02	17.00	29,239.49
Total			264,250.58			152,247.20

Note: This extraction rates appears to be rather strange, the reason is that those complex commodities are coming from more than one single primary product.

Total	Maize Imports Equivalent	Maize Exports Equivalent
Simple Commodities	2,444,397.69	616,533.10
Complex Commodities	264,250.58	152,247.20
General Total	2,708,648.27	768,780.30

Commodity	Cassava (fresh and dried)
Area Harvested Ha	43,563
Yield Kg/Ha	11,740
Production quantity (tonnes)	511,444
Import quantity (tonnes)	14,940
Export quantity (tonnes)	1,020
Feed and seed Quantity (tonnes)	51,160
Other net uses quantity (tonnes)	173,800
Food consumption Quantity (tonnes)	300,390

The official data in the account relating to cassava are those for production of fresh cassava, yield of cassava and imports and exports of cassava. For the other elements, plausible estimates have to be prepared on the basis of available ancillary information, have been used as input for the model, which not only is balancing, but also controlling that each account varies with time in a reasonable way, so that all the incompatibilities are averaged and removed through time. The area harvested has been estimated by dividing the recorded production figure by the yield figure.

Using conversion factors, it is easy to convert imports or exports onto cassava equivalents.

It is important to mention that each conversion factor refers to the primary one. Within trade all the eventual food aids should be included by both donors and recipients.

For example in the case of cassava the processed simple items related are: flour of cassava, tapioca of cassava, cassava dried and starch of cassava.

Commodity	Potatoes
Area Harvested	170,530
Yield Kg/Ha	30,322
Production Quantity (tonnes)	5,170,790
Import Quantity (tonnes)	357,640
Export Quantity (tonnes)	1,677,880
Feed and seed Quantity (tonnes)	290,430
Other net uses Quantity (tonnes)	591,360
Food consumption Quantity (tonnes)	2,968,780

The data reported officially for area, production, imports and exports are entered into the account. Yield has been calculated by dividing production by area. The area harvested has been estimated by dividing the recorded production figure by the yield figure. For the other elements, plausible manual estimates, prepared on the basis of available ancillary information, have been used as input for the model, which not only is balancing, but also controlling that each account varies with time in a reasonable way, so that all the incompatibilities are averaged and removed through time.

Using conversion factors, it is easy to convert imports or exports onto potatoes equivalents.

It is important to mention that each conversion factor refers to the primary one. Within trade all the eventual food aids should be included by both donors and recipients.

For example in the case of potatoes the processed simple items related are: flour of potatoes, frozen potatoes, starch of potatoes, and tapioca of potatoes.

Commodity	Sugar Cane and Sugar crops, nec
Area Harvested Ha	125,476
Yield Kg/Ha	70,247
Production quantity (tonnes)	8,814,250
Import quantity (tonnes)	2,210,240
Export quantity (tonnes)	235,600
Feed and seed Quantity (tonnes)	533,380
Other net uses quantity (tonnes)	1,874,630
Food consumption Quantity (tonnes)	8,380,880

The commodities included in this group are sugar cane and sugar crops n.e.c. The data reported officially for area, production, imports and exports are entered into the account. Yield has been calculated by dividing production by area. Feed, estimated on the basis of information available from the Ministry of Agriculture or National Statistical Office and commercial feed processing industries, waste based information obtained from merchants in the sugar business, and food obtained as balance, are the "most fluctuating" inputs for the SUA Model, which is a constrained control model, i.e. it minimizes an objective function essentially by varying food, feed, waste, other uses, meanwhile respecting the closed balance and other constraints.

Using conversion factors, it is easy to convert imports or exports onto Sugar Cane and Sugar crops, n.e.c equivalents.

It is important to mention that each conversion factor refers to the primary one. Within trade all the eventual food aids should be included by both donors and recipients.

For example in the case of sugar cane and sugar crops n.e.c the processed simple items related are: cane sugar, maple sugar and syrups, sugar crops, nes and sugar non-centrifugal.

Commodity	Peas, dry
Area Harvested Ha	1,345,100
Yield Kg/Ha	2,481.75
Production quantity (tonnes)	3,338,200
Import quantity (tonnes)	32,640
Export quantity (tonnes)	1,576,340
Feed and seed Quantity (tonnes)	1,399,530
Other net uses quantity (tonnes)	296,570
Food consumption Quantity (tonnes)	98,400

The data reported officially for area, production, imports and exports are entered into the account. Yield has been calculated by dividing production by area. For the other elements, plausible manual estimates, prepared on the basis of available ancillary information, have been used as input for the model, which not only is balancing, but also controlling that each account varies with time in a reasonable way, so that all the incompatibilities are averaged and removed through time.

Using conversion factors, it is easy to convert imports or exports onto peas dry equivalents.

It is important to mention that each conversion factor refers to the primary one. Within trade all the eventual food aids should be included by both donors and recipients.

Commodity	Groundnuts, with shell
Area Harvested Ha	564,140
Yield Kg/Ha	3,447.89
Production quantity (tonnes)	1,945,090
Import quantity (tonnes)	211,350
Export quantity (tonnes)	346,440
Feed and seed Quantity (tonnes)	172,730
Other net uses quantity (tonnes)	61,680
Food consumption Quantity (tonnes)	1,575,600

The data reported officially for area, production, imports and exports are entered into the account. Yield has been calculated by dividing production by area. Feed, estimated on the basis of information available from the Ministry of Agriculture or National Statistical Office and commercial feed processing industries, waste based information obtained from merchants in the area business, and food obtained as balance, are the "most fluctuating" inputs for the SUA Model, which is a constrained control model, i.e. it minimizes an objective function essentially by varying food, feed, waste, other uses, meanwhile respecting the closed balance and other constraints.

Using conversion factors, it is easy to convert imports or exports onto Groundnuts, with shell equivalents.

It is important to mention that each conversion factor refers to the primary one. Within trade all the eventual food aids should be included by both donors and recipients.

For example in the case of groundnuts the processed simple items related are: groundnuts in shell, groundnuts shelled, oil of groundnuts, cake of groundnuts, prepared groundnuts and peanut butter.

Commodity	Area Harvested Ha	Yield Kg/Ha	Production Quantity
Oilcrops +	37,120,810	2,598	96,455,000
Cottonseed	5,284,040	1,415	7,477,110
Groundnuts, with shell	564,140	3,448	1,945,090
Linseed	206,800	1,274	263,360
Mustard seed	27,800	918	25,530
Olives	12,960	7,523	97,503
Rapeseed	338,240	1,798	608,000
Safflower seed	64,350	1,349	86,800
Soybeans	29,930,060	2,840.38	85,012,800
Sunflower seed	692,420	1,342.67	929,690

Commodity	Production Quantity (tonnes)	Import Quantity (tonnes)	Export Quantity (tonnes)	Feed and seed Quantity (tonnes)	Other net uses Quantity (tonnes)	Food consumption Quantity (tonnes)
Oilcrops +	96,445,880	12,161,760	32,567,690	8,616,950	33,134,460	34,288,550
Coconuts (incl. copra)		3,438,170	70,850		2,616,550	750,770
Cottonseed	7,477,110	41,400	1,501,000	5,890,640	126,870	
Groundnuts	1,945,090	211,430	340,520	93,400	136,340	1,586,260
Linseed	263,360	116,500	165,950	13,400	200,510	
Oilseeds, nec	86,800	274,380	893,450	4,180	-536,440	
Olives	97,500	2,443,520	136,510		94,690	2,309,830
Palm nuts-kernels (nut equiv.)		2,407,710	101,340		2,306,380	
Rapeseed and Mustard seed	633,530	1,971,900	820,740	3,740	989,420	791,530
Sesame seed		77,140	5,970		34,900	36,280
Soybeans	85,012,800	1,057,630	28,130,130	2,368,450	27,133,920	28,437,940
Sunflower seed	929,690	121,970	401,240	243,150	31,330	375,940

The data reported officially for area, production, imports and exports are entered into the account. Yield has been calculated by dividing production by area. Feed, estimated on the basis of information available from the Ministry of Agriculture or National Statistical Office and commercial feed processing industries, waste based information obtained from merchants in the area business, and food obtained as balance, are the “most fluctuating” inputs for the SUA Model, which is a constrained control model, i.e. it minimizes an objective function essentially by varying food, feed, waste, other uses, meanwhile respecting the closed balance and other constraints.

Using international conversion factors, it is easy to convert imports or exports onto Oilcrops equivalents.

It is important to mention that each conversion factor refers to the primary one. Within trade all the eventual food aids should be included by both donors and recipients.

For example in the case of Coconuts (incl. copra) the processed simple items related are: coconuts desiccated, copra, oil of coconuts and cake of coconuts.

For example in the case of Cottonseed the processed simple items related are: cottonseed, oil of cottonseed and cake of cottonseed.
For example in the case of Groundnuts the processed simple items related are: groundnuts in shell, groundnuts shelled, oil of groundnuts, cake of groundnuts, prepared groundnuts and peanut butter.
For example in the case of Linseed the processed simple items related are: oil of linseed and cake of linseed.
For example in the case of Oilseeds, nec the processed simple items related are: karite nuts (Sheanuts), butter of karite nuts, tung nuts, oil of tung nuts, jojoba seed, oil of jojoba, oil of vegetable origin, nes, cake of oilseeds nes, oil of kapok seed, cake of kapok seed, hempseed, oil of hempseed, cake of hempseed, oilseeds, nes, melonseed, tallowtree seeds, vegetable tallow, stillingia oil, kapok seed in shell, kapok seed shelled, safflower seed, oil of safflower seed, cake of safflower seed, poppy seed, oil of poppy seed and cake of poppy seed.
For example in the case of Olives the processed simple items related are: oil of olives virgin, olives preserved, olives residues and oil of olive residues.
For example in the case of Palm nuts–kernels (nuts equiv.) the processed simple items related are: oil palm fruit, palm nut kernels, oil of palm, oil palm kernel and cake of palm kernels.
For example in the case of Rapeseed and Mustard seed the processed simple items related are: rapeseed, oil of rapeseed, cake of rapeseed, mustard seed, oil of mustard seed, cake of mustard seed and flower of mustard seed.
For example in the case of Sesame seed the processed simple items related are: oil of sesame seed and cake of sesame seed.
For example in the case of Soybeans the processed simple items related are: oil of soybeans, cake of soybeans, soya sauce, soya paste and soya curd.
For example in the case of Sunflower seed the processed simple items related are: oil of sunflower seed and cake of sunflower seed.

III. EXAMPLES FOR THE LIVESTOCK SECTOR

When creating a livestock account, the data for animal numbers (stocks of various species) are entered first. Other data are then added as may be seen in the examples that follow.

Element	Cattle
Stocks Head	94,888,000
Imports Quantity Head	1,373,768
Exports Quantity Head	30,236
Producing or slaughtered Animals Head	33,759,700

The figure for the element "slaughtering" in the cattle account becomes the input for other related accounts, i.e., cattle meat. Bovine meat in the SUA may include both cattle meat and buffalo meat.

Commodity	Bovine meat
Animals Slaughtered Head	33,759,700
Carcass Wgt/Yield Kg/ An	334
Production quantity (tonnes)	11,261,000
Import quantity (tonnes)	851,050
Export quantity (tonnes)	1,321,130
Feed and seed quantity (tonnes)	1,893,920
Other net uses quantity (tonnes)	2,100,090
Food consumption quantity (tonnes)	6,796,920

The carcass weight for beef and veal has been calculated by dividing the figure obtained for production by the number of slaughtering. The data reported officially production, imports and exports are entered into the account, and the waste is assumed to be 2% of the supply (production + imports). For the other elements, plausible manual estimates, prepared on the basis of available ancillary information, have been used as input for the model, which not only is balancing, but also controlling that each account varies with time in a reasonable way, so that all the incompatibilities are averaged and removed through time.

Using conversion factors, it is easy to convert imports or exports onto bovine meat equivalents.

It is important to mention that each conversion factor refers to the primary one. Within trade all the eventual food aids should be included by both donors and recipients

For example in the case of Bovine meat the processed simple items related are: meat of cattle (beef and veal bone in), meat of cattle, boneless (beef and veal, boneless), cattle butcher fat, meat of beef , dried, salted, smoked; meat extracts, sausage beef and veal, preparations of beef meat, beef canned, homogen. meat preparations and meat of buffaloes.

Commodity	Milk, whole, fresh
Producing Milking Animals Head	9,010,000
Carcass Wgt/Yield Kg/An	8,603,610
Production Quantity (tonnes)	77,518,570
Import Quantity (tonnes)	3,090,830
Export Quantity (tonnes)	4,986,270
Feed and seed Quantity (tonnes)	10,003,810
Other net uses Quantity (tonnes)	-10,948,140
Food consumption Quantity (tonnes)	76,567,450

In this example, it is assumed that the figures for the number of milking animals as well as those for production, imports and exports are available from official sources. For the other elements, plausible manual estimates, prepared on the basis of available ancillary information, have been used as input for the model, which not only is balancing, but also controlling that each account varies with time in a reasonable way, so that all the incompatibilities are averaged and removed through time.

Using conversion factors, it is easy to convert imports or exports onto Milk, whole, fresh equivalents.

It is important to mention that each conversion factor refers to the primary one. Within trade all the eventual food aids should be included by both donors and recipients

For example in the case of Milk whole, fresh the processed simple items related are: lactose, milk of cow whole, fresh; standardized milk, cream fresh, butter cow milk, ghee, butter oil of cow milk, milk skimmed sheep , milk of goats, cheese of goat milk, butter of goat milk, milk skimmed goats, milk of camel, ghee oil of buffaloes, milk skimmed of buffaloes, cheese of buffalo milk, milk of sheep, butter, ghee of sheep milk, cheese of sheep milk, reconstituted milk, products of nat. milk constituents, ice cream and edible ice, casein, milk of buffaloes, butter of buffalo milk, whey dry, cheese of whole cow milk, whey fresh, cheese of skimmed cow milk, whey cheese, processed cheese, milk whole evaporated, milk skimmed evaporated, milk skimmed condensed, milk whole dried, milk skimmed dry, milk skimmed of cows, whey condensed, yoghurt, yogh conc. or not and buttermilk, curdl, acid. Milk

Commodity	Bird eggs (incl. hen eggs)
Laying population Head	338,200,000
Yield Kg/An	15.61
Production quantity (tonnes)	5,278,300
Import quantity (tonnes)	23,720
Export quantity (tonnes)	127,550
Feed and seed Quantity (tonnes)	701,010
Other net uses quantity (tonnes)	103,010
Food consumption Quantity (tonnes)	4,370,460

Turning to the account for hen eggs, the yield has been calculated by dividing production by number of reported laying birds. Hatching is estimated as a certain % of production when official data are not available, the same situation for waste as certain % of production. Data for production, imports and exports are available from official sources. For the other elements, plausible manual estimates, prepared on the basis of available ancillary information, have been used as input for the model, which not only is balancing, but also controlling that each account varies with time in a reasonable way, so that all the incompatibilities are averaged and removed through time.

Using conversion factors, it is easy to convert imports or exports onto Bird eggs (incl. hen eggs) equivalents.

It is important to mention that each conversion factor refers to the primary one. Within trade all the eventual food aids should be included by both donors and recipients

For example in the case of Bird eggs (incl. hen eggs) the processed simple items related are: egg albumine, hen eggs, eggs liquid, eggs dried and eggs excl. hen eggs.

IV. Definition of Elements used in Supply Utilization Accounts of Fishery and Fishery Products (FIES internal working system).

Basic data for fish and fishery products are treated applying the traditional FAO SUA/FBS methodology, which allows to define the utilization of captured fish, as well as to identify the different types of processing for each country.

Some of the SUA elements of the fishery sector assume particular significance according to the commodity type they belong to (either primary fish or derived products). A few other elements are common to both groups and can be treated equally.

Elements for Primary Fish

Production: production refers to the nominal catch, i.e. the live-weight equivalent of the landings of the retained catch (part of the fish caught during the fishing operations may be discarded overboard because it is undersized, unmarketable or undesirable to the fisherman; another part may be unrecorded when utilized by the crew for own consumption or used as bait during fishing). The nominal catch is thus the net weight of the quantities retained and landed plus the weight of the losses due to the dressing, handling and processing onboard and the loss of the fluid content. Figures relate to the total national fish production in terms of live weight.
Production includes catch and culture of all fish, crustaceans, molluscs and aquatic organisms, excluding mammals.

Breed/bait: this mixed element refers to fish used for breeding or, more frequently, as bait for other types of fishing.

Processing: it records the total quantity of raw fish processed (e.g. filleted) or preserved (e.g. frozen, cured, canned, etc.). The amount shown in this element should be equivalent to the sum of inputs of all derived products.

Elements for Derived Fishery Products

Input: this element refers to the quantities of raw fish and shellfish, expressed in nominal catch weight (i.e. in live-weight equivalent) which are processed (e.g. filleted) or preserved (e.g. frozen, cured, canned, etc.).

Extraction rate: it expresses the percentage of the input retained after the processing operation has been carried out. When available, it reflects the rate prevailing among national industries.

Output: it refers to the net quantity of the finished product obtained after processing and preserving the raw product, whether nationally caught or cultured, or imported. The output includes products produced on-board factory ships, by land-based industries and by fishermen's families as a domestic "cottage-level" activity. It includes preserved and processed fishery commodities produced onboard domestic fish factory ships and fishing craft even when landed directly in foreign ports, though in such cases the quantities involved are also included in exports.

Stock variations: This category refers to changes in stocks occurring at all levels between production and retail chain. It covers changes in government stocks, in stocks held by manufacturers, importers, exporters, other wholesale and retail merchants, transport and storage enterprises.
Information on changes in stocks is often not available or incomplete for a number of countries and important commodities. In many instances data on stocks variations refer to the minimum quantity required to avoid a negative balance.

Processing: this element records the quantity of an already processed commodity (e.g. frozen fish) which is then processed further (e.g. canned). The quantity shown in this element corresponds to the product-weight equivalent of the related input.

Elements for Primary Fish and Derived Fishery Products

Import quantity and Export quantity: in accordance with the international recommended practice, fishery trade statistics cover all movements of foreign commercial trade of fish and fishery products into and out of the country. Data on imports should include fish caught by foreign fishing vessels and landed in domestic ports, whereas data on exports should include fish caught by domestic fishing vessels and landed directly in foreign ports.

Feed: data stored in this element refer to quantities fed to fish for aquaculture and mariculture purposes, as well as amounts fed to fur animals or domestic pets in the case of a commodity normally destined to human consumption or utilized to produce compound feeds for livestock, pigs and poultry in the case of those commodities generally meant for feed purpose.

Waste: refers to losses accumulated during the year between the landing and retail sage, as a result of handling, storage and transportation practices. It does not include the waste of edible and inedible parts of the commodity which occurs after the retail level.

Food: it refers to the total amount of the commodity available as human food during the year, derived by the following equation:

Production + Imports – Exports – all Other Non-Food Uses + or – Changes in stocks = Total supply for human consumption.

Availability in the SUAs is expressed in terms of product weight, whereas in FBS domain it is expressed in live-weight equivalent.

Other uses: this element covers the multiplicity of non-food uses of the catch. These include withdrawals from market, quantities caught by vessels fishing under flags of convenience and consumed outside the country, utilization of shells for jewellery, fish for ornamental purposes and any other non-food destination such as medical uses or fertilizers.

V. EXAMPLES FOR THE FISHERY SECTOR

Freshwater fish (fresh)

Production (catch)	MT	90 950
Exports	MT	441
Processing	MT	43 330
Food	MT	47 179

Beginning with the account for freshwater fish, the amount processed is the sum of the input of fresh fish for the manufacture of frozen fillets (6 600 MT) and cured freshwater fish (36 730). The food element of freshwater fish is then the remainder of the production after allowing for exports.

Freshwater fillets (frozen)

Input	MT	6 600
Extraction rate	Percent	40
Production	MT	2 640
Exports	MT	227
Food	MT	2 413

The input for freshwater fillets has been calculated by using the known extraction rate, while food is obtained as the remainder after providing for the quantity exported.

Freshwater fish (cured)

Input	MT	36 730
Extraction rate	Percent	35
Production	MT	12 855
Exports	MT	209
Food	MT	12 646

For the SUA of freshwater fish (cured), the calculation of input is based on the extraction rate and the quantity produced. Food is the remainder once exports have been subtracted.

Marine fish (fresh)

Production (catch)	MT	6 475
Processing	MT	77
Food	MT	6 398

In the case of fresh marine fish, "processing" is the quantity of fresh marine fish needed to manufacture the exports of cured marine fish.

Marine fish (cured)

Input	MT	77
Extraction rate	Percent	33.3
Production	MT	26
Exports	MT	26

The SUA for cured marine fish is created to cover an export of 26 MT which must have been manufactured in the absence of an offsetting quantity of imports. Thus, production is estimated at the level of exports, while the input quantity is calculated based on the known extraction rate.

APPENDIX

The sources of **Production data** are:
F = FAO estimate
Fc = Calculated data
Ft = Trend data
Q = Official data reported on FAO Questionnaires from countries
W = Data reported on country official publications or web sites (Official) or trade country files
X = International reliable sources (USDA, WTO, World Bank, IMF)

The sources of **Trade data** are:
W = Data reported on country official publications or web sites (Official) or trade country files.
Ft = Trend data
Fq = Computer calculated data
R = Country data reported by Trade partners - Official Partner data.

The sources of **Supply Utilization Accounts** are:
Fq = Computer calculated data

The sources of **Food Balance Sheet** are:
Fq = Computer calculated data