

Figures 2.3 to 2.5 in Chapter 2 elaborate the hierarchical structure of policy goals, objectives and instruments. Figure 2.3 is augmented here as Figure 5.1 in order to illustrate how specific items of information are related to support decision making in specific areas, e.g., improved food and nutrition. Similar relationships can be made for the other policy areas shown in Figures 2.4 and 2.5 for Improved Quality of Rural Life and Agricultural Contributions to General Economic Development, respectively.

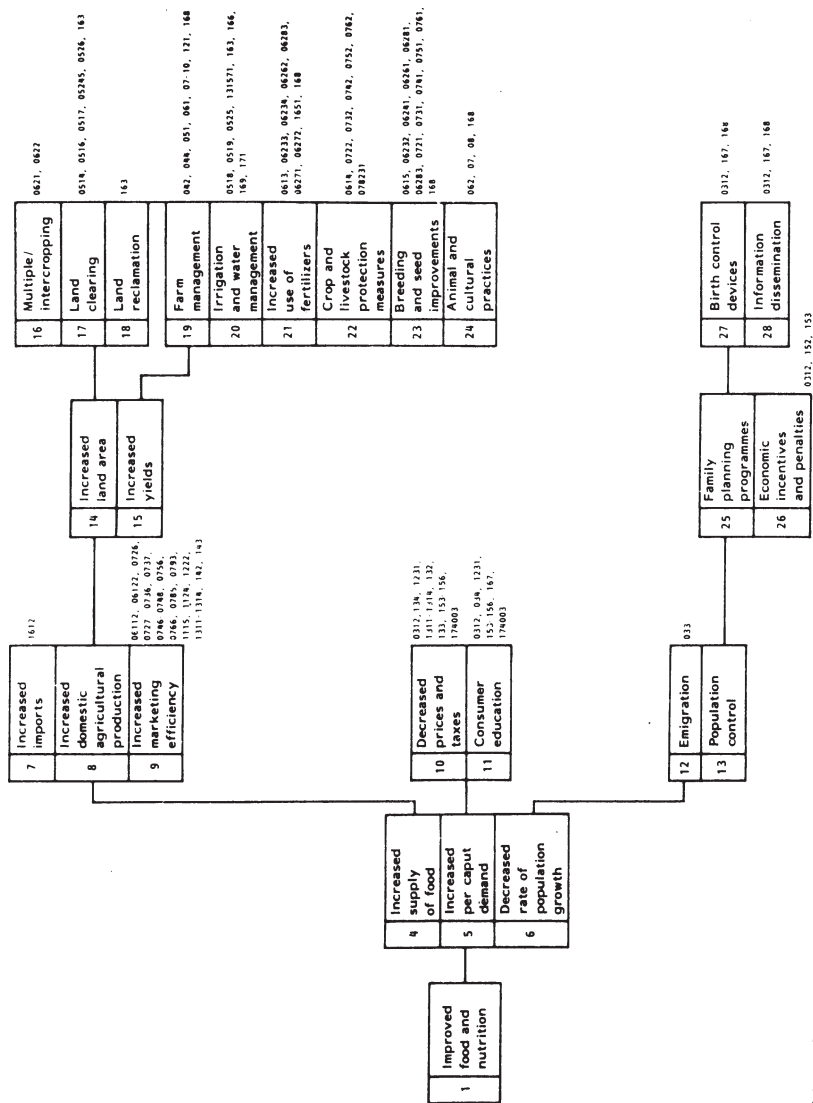
Code numbers of information items relevant to the analysis of a policy area are indicated at the right side of the figure, following the lowest level of policy instrument indicated for that area. If fewer than six digits are shown, then all items subsumed under the two-, three-, four- or five-digit level indicated are considered to be relevant. Descriptions of items corresponding to the code numbers are given in Appendix I. For data collection purposes, appropriate sources and measurement instruments for each item are also indicated in Appendix I and discussed in Chapter 6. Operational definition of key items are given in the next section.

### 5.3 Operational Definitions

As discussed in Chapter 4, all our observations and, hence, empirical knowledge of the world, or of a relevant part of it called the target world, are filtered by our concepts of that world. To provide useful information for decision making, however, vague and primitive concepts need to be carefully and explicitly defined so that statisticians, analysts and decision makers can be assured of using the same filter to view the same world. The classification scheme presented in Section 5.1 is one important step in achieving a common view and understanding. Another essential component is the operational definition of the information items so classified, i.e., for each item, the identification of exactly what is to be observed and analysed and how it is to be measured. In principle and in practice, these definitions need to be made by and for each country in light of its own situation and policy agenda. In addition, there is also a need for some international comparability and consistency for cross-country analyses and interpretations. This section makes some suggestions along these lines for key concepts and items in each of the major (two-digit) classification categories.

#### 5.3.1 Category 01: Identification

Category 01 identifies the entities in the target world which are the subject of both data collection activities (i.e., observation) and



Adapted from Rossmiller and Johnson (1978)

Figure 5.1 - Policy areas and information relevant to improved food and nutrition

analysis. Following the recommendations of the United Nations Statistical Office (UN 1968b), three types of units are distinguished:

- (a) the statistical unit -- the entity for which items are measured, i.e., for which data are gathered;
- (b) the reporting unit -- the entity making the measurement, i.e., from which the data are gathered; and
- (c) the tabulating unit -- the entity measured.

In general, these units are different for different statistical and analytical activities, e.g., the statistical unit for the agricultural census is the agricultural holding, while for the household income-expenditure survey it is the household. Even for a particular activity, it is not always possible for all three types of units to refer to the same entity. For example, in a census of agriculture, in tabulating the age distribution of cattle for an agricultural holding which is part of an enterprise engaged in both agriculture and manufacturing, the statistical unit is the agricultural holding, the reporting unit is the enterprise, and the tabulating unit is the cattle.

#### 0111 Holding

An agricultural holding is an economic unit of agricultural production under single management and comprising all land and livestock kept wholly or partly for agricultural production purposes, without regard to title, legal form or size. The management may be exercised by an individual, a household, jointly by two or more individuals or households, a clan or tribe, or a legal person, e.g., a corporation, collective, cooperative or government agency. The holding's land may consist of one or more parcels located in one or more areas, provided all the parcels share the same management and the same pool of factors of production, e.g., labour, farm buildings, machinery and draught animals available to and utilized by the holding as a whole.

The following points should be observed in identifying a holding:

- (a) Economic units engaged solely in hunting and trapping, forestry and logging, and fishing are not agricultural holdings, because they are not considered to be agricultural production activities.
- (b) Economic units engaged in agricultural services are considered to be establishments (see the definition of "establishment", below) rather than holdings.

- (c) Some holdings, for which land is not an essential factor of production, may have little or no significant amount of land, e.g., poultry hatcheries or certain other livestock production activities.
- (d) In some countries, there are holdings, called tree holdings, whose operators have no rights to the use of the land on which the trees are grown.
- (e) Agricultural production units under the same ownership or general direction are considered to be separate holdings if they are operated by different persons.
- (f) A given household may have more than one holding.
- (g) Holdings may be operated by part-time holders (see the definition of "part-time holder", below).
- (h) Open rangeland is not considered a holding. If, however, a specified area is delimited by fencing or other form of boundary demarcation, and if its use is supervised, such land may be considered a "communal grazing land holding" as a special category.

#### 0112    Holder

The holder is a person who exercises management control over the operations of the agricultural holding and takes the major decisions regarding the use of available resources. He has technical and economic responsibility for the holding. He may undertake all of his responsibilities directly or delegate the day-to-day management of the work to a hired manager.

#### 0121    Household

The concept of a household is one of the basic elements of observation and analysis in national information systems. The most recent United Nations definition of a household is (UN 1980, p. 50):

"The concept of household is based on the arrangements made by persons, individually or in groups, for providing themselves with food or other essentials for living. A household may be either (a) a one-person household, that is, a person who makes provision for his or her own food or other essentials for living without combining with any other person to form part of a multiperson household, or (b) a multiperson household, that is, a group of two or more persons living

together who make common provision for food or other essentials for living. The persons in the group may pool their incomes and have a common budget to a greater or lesser extent; they may be related or unrelated persons or a combination of both. Households usually occupy the whole, part of, or more than one housing unit but they may also be found living in camps, boarding houses or hotels or as administrative personnel in institutions, or they may be homeless. Households consisting of extended families that make common provision for food or of potentially separate households with a common head, resulting from polygamous unions, or households with vacation or other second homes may occupy more than one housing unit. Homeless households are defined as those households without a shelter that would fall within the scope of living quarters."

Explaining various types of households, particularly the extended household, is needed because of the possibility of having more than one holding in one household. The United Nations has recommended a classification of households based on the "family nucleus" concept. The family refers to "those members of the household who are related, to a specified degree, through blood, adoption or marriage" (UN 1980, p. 72). A household may be comprised of more than one family, where a family nucleus consists of one of the following types, each of which must consist of persons living in the same household:

- (a) a married couple without children;
- (b) a married couple with one or more never-married children;
- (c) a father with one or more never-married children; or
- (d) a mother with one or more never-married children.

The following types of household are identified (UN 1980, pp. 73-74):

- (a) one-person household;
- (b) nuclear household, consisting entirely of a single family nucleus;
- (c) extended household, defined as consisting of either:
  - (i) a single family nucleus, and other persons related to the nucleus;
  - (ii) two or more family nuclei related to each other, without any other persons;
  - (iii) two or more family nuclei related to each other, plus other persons related to at least one of the nuclei; or
  - (iv) two or more persons related to each other but none of whom comprises a family nucleus;

(d) composite household, defined as a household consisting of either:

- (i) a single family nucleus plus other persons, some of whom are related to the nucleus and some of whom are not;
- (ii) a single family nucleus plus other persons, none of whom is related to the nucleus;
- (iii) two or more family nuclei related to each other plus other persons, some of whom are related to at least one of the nuclei;
- (iv) two or more family nuclei related to each other plus other persons, none of whom is related to any of the nuclei;
- (v) two or more family nuclei not related to each other, with or without any other persons;
- (vi) two or more persons related to each other but none of whom comprises a family nucleus, plus other unrelated persons;  
or
- (vii) unrelated persons only.

It should be noted that in rural areas, particularly in developing countries, a one-to-one correspondence between a household and a holding is quite common. In fact, households whose members operate separate holdings, and holdings operated by two or more persons belonging to different households, while they exist, are few in number. Thus, households may serve as efficient vehicles to identify holdings. The important point to keep in mind in considering the relationship between a household and a holding is that a household is a complex socio-economic unit, whereas a holding is solely an economic unit. Thus, when studying an agricultural holding whose holder is the head of a rural household, the holding should be considered as the economic unit engaged in agricultural production; the members of the household who participate in the work of the holding as members of the labour force used by the holding; and other members of the household as not directly related to the holding. When studying the household, however, the scope of the investigation may extend beyond the economic activities covered in the study of the holding.

#### 0122 Head of household

The head of the household is defined as that person in the household who is acknowledged as such by the other members. The head has the primary authority and responsibility for household affairs. However, in cases where such authority and responsibility are not vested in one person, special rules may be needed to identify the head of household (UN 1980, p.70).

0113 and 0123 Respondent

The respondent is the person from whom the information about the statistical unit is collected.

013 Establishment

The establishment is the main statistical unit of industrial censuses and surveys. According to the United Nations definition (UN 1968a, p. 12), the basic features of an establishment are:

- (a) it is under single control;
- (b) it is engaged in one, or predominantly one, kind of economic activity; and
- (c) it operates at a single location.

In practice, it is not always possible to meet all three of these criteria. Therefore, for operational purposes, some flexibility is introduced (UN 1968b, p. 13), particularly with respect to the third criterion, by defining the establishment as the combination of activities and resources directed by a single owning or controlling entity toward the production of most homogeneous group of goods and services, usually at one location, but sometimes over a wider area, for which separate records are available that can provide data concerning the production of these goods and services and the materials, labour and physical resources, both direct and indirect, used in that production. Below are some examples of flexibilities introduced by this definition, which emphasizes the need for an establishment's keeping of separate records.

- (a) An establishment may have units at more than one location. The ancillary units of an establishment, if they serve only that establishment, e.g., warehouses, garages, repair shops, and research laboratories, may be considered integral parts of the main establishment even if they are located in different areas.
- (b) For mining, the establishment includes all wells or pits and ore processing plants located in a single mining field. Individual wells or pits are not treated as separate establishments as long as they are in the same mining field.
- (c) For electricity and gas, the establishment includes both the main producing plant and its distribution system, which may extend over many areas.

The economic units engaged in agricultural services conform to this definition of an establishment. Although an agricultural holding is not considered to be an establishment, it does share some common features:



- (a) both refer to a unit of production;
- (b) both require a single management; and
- (c) both encompass predominantly one kind of economic activity.

Indeed, at the present disaggregation level of the ISIC, all plant and livestock production is considered a single economic activity group (code 1110).

Geographic characteristics differentiate holdings and establishments. An establishment operates essentially at a single location. It may have ancillary units at locations other than its main site, but it cannot carry out its economic activity at more than one location. If it does, it is called a "kind-of-activity unit" rather than an establishment. It is necessary to have a single location for the statistical unit in industrial statistics in order to derive and publish the results by geographically identifiable regions.

Although agricultural statistics have a similar need, it is not possible to restrict a holding to a single location, since land, which may exist in widely separated parcels, constitutes an essential factor of production for the holding. However, the present definition of a holding does provide a framework for tabulating regional information. In particular, information on a parcel in one territorial or administrative division may yet be included in a holding located in another division as long as it is under the management of that holding and the means of production used on that parcel, e.g., labour force, machinery and animals, are the same as those used on other parcels.

#### 014 Locality

The United Nations defines a locality as "a distinct population cluster (also designated as inhabited place, populated centre, settlement, etc.) in which the inhabitants live in neighbouring living quarters and which has a name or locally recognized status" (UN 1980, p. 68). This definition embraces population clusters of all sizes, including fishing hamlets, mining camps, farms, ranches, market centres, villages, towns and cities. For locality statistics in agriculture, it may be more practical to exclude localities larger than rural towns.

#### 015 Other units

It may be necessary to identify still other units for purposes of special rural and agricultural inquiries. Such units may include, for example, well defined areas for an agricultural production survey



based on an area frame, schools for a food consumption survey of school children, and hospitals and clinics for a study of the availability and quality of rural health care.

### 5.3.2 Category 02: General Characteristics

This category describes the legal status and other organizational characteristics of agricultural holdings, their holders, enterprises, agricultural service establishments and cooperatives.

#### 0211 Legal status of holder

Two broad categories of legal status of holders are identified: private and government. While government holdings are operated by a central or local government, directly or through a special body, there are several types of private holders.

In most cases, the private holder is an individual. There may be more than one holder in a given household, each operating a separate holding. If, however, the agricultural operations carried out and commodities produced by different members of the same household are sufficiently pooled, then it may be more practical to treat them as only one holding, as may be the case under the conditions of traditional agriculture prevailing in some parts of the world. In extended households and composite households, on the other hand, it may be more convenient to distinguish the existence of several holders and holdings. In cases where two or more members of the same household operate jointly the same holding, the holder is considered to be the household. Finally, when two or more individuals of different households share jointly the operation of a holding, each of them should be identified as a joint holder.

Because of the seasonality of agriculture, many countries are seeing increasing numbers of holders engaged in other economic activities in addition to agriculture. A full-time holder may have secondary, temporary occupations, e.g., in transport or trade or as an occasional worker during the slack season.

Legal persons, such as corporations and cooperatives may also be private holders of agricultural holdings. In most countries, joint stock companies are a typical example of corporations, while cooperatives include several kinds of organizations characterized by various combinations of individual and joint ownership or leasehold.

Finally, there may be private holders who do not fall into any of the categories described above (and listed in classification items 021101 and 022001 in Appendix I), e.g., tribes, clans or private schools.

#### 0212   Hired manager

A hired manager is a civil or legal person who takes the technical and administrative responsibility of managing a holding on behalf of a holder. His or her responsibilities are limited to making day-to-day decisions in operating the holding, including the management and supervision of hired labour. If, however, the hired manager has or shares economic and financial responsibilities and rewards in addition to managing the holding, he or she should be considered a holder or a joint holder.

#### 0213   Economic activities of an enterprise

An enterprise is a legal entity or family of legal entities which may own or control a number of establishments, where by definition (see discussion above for item 013 in Section 5.3.1) an establishment is engaged in predominantly one kind of economic activity. In many countries, there are enterprises engaged in agriculture together with other economic activities, as identified in this classification section.

### 5.3.3   Category 03:   Demographic and Anthropometric Characteristics

Demographic and anthropometric characteristics of household members constitute an essential component of many studies, particularly those concerning employment, food consumption and nutrition.

#### 031204   Educational attainment

"Educational attainment refers primarily to the highest grade completed within the most advanced level attended in the educational system of the country where the education was received, but it should also take into account any adult education measurable in levels and grades, or their equivalent, even if it was provided outside of the regular school and university system" (UN 1980, p. 86). In rural areas information on literacy is of particular importance for developing countries. "Literacy is the ability both to read and to write. . . . The language or languages in which a person can read and write is not a factor in determining literacy" (UN 1980, p. 88).

### 5.3.4 Category 04: Employment

This category covers (a) employment of household members and hired labour on holdings and in agricultural service establishments and (b) other employment of the members of a holder's household. It is important to note that information items pertinent to particular data collection and analytical activities should be made consistent with the statistical unit chosen. For example, employment may be an appropriate focus of a survey where the holding is the statistical unit, but in a labour force survey the interest would focus on individuals.

#### 0411 Labour force participation

Economically active persons are those who furnish labour for the production of economic goods and services during the reference period. For persons to be included in the economically active population, a minimum age, e.g., 15 years, should be determined by each country, taking its own conditions into account. Since children usually participate in agricultural work in most developing countries, a lower minimum age will frequently be desirable. To facilitate international comparisons, however, tabulations should distinguish between persons under 15 years of age and those aged 15 years or more. A separate tabulation for persons under 10 years of age is also recommended if the country's minimum age is less than that. No upper age limit is recommended for persons to be considered economically active.

Non-economically active persons fall into the following categories:

- (a) Homemakers -- persons of either sex who are engaged in household duties in their own homes, e.g., housewives and other relatives responsible for the care of the home and children.
- (b) Students -- persons of either sex who attend any regular educational institution, public or private, for systematic instruction at any level of education.
- (c) Income recipients -- persons of either sex who receive income solely from property or other investments, royalties, or pensions from former economic activities.
- (d) Others -- persons of either sex who are receiving public aid or private support and are not otherwise employed or seeking employment, and all other persons not falling into any of the above categories, e.g., children not attending school and disabled and retired members of the household.

In determining a household member's participation in the labour force, economic activity has precedence over non-economic activity, e.g., employed and unemployed persons should be considered economically active even though they may also be students or homemakers.

The economically active population includes the civilian labour force and the armed forces. The civilian labour force is further divided into employed and unemployed persons.

As defined by the International Labour Office (ILO 1959, pp. 44-45), the employed include all persons who worked during some reference period or who had a job in which they had been working but from which they were temporarily absent, e.g., because of illness, injury, labour dispute, vacation, or bad weather. The unemployed consist of all persons who were not working during the reference period but who were seeking work for pay or profit, including those who had never worked before. Also included are persons who were not seeking work during the reference period because of temporary illness, because they were awaiting the start of a new job subsequent to the reference period, because they were on temporary or indefinite lay-off without pay, or, in areas of limited employment opportunities, because they believed no jobs to be available. For members of an agricultural holder's household, the criterion of pay or profit does not apply, since such people may not be paid.

#### 0412 Occupation

The occupation of an economically active person, whether employed or unemployed, refers to the kind of work done during the reference period. For persons with more than one occupation, the main occupation is the one representing the largest proportion of working time during the reference period. Occupations are classified by the International Labour Office (ILO 1969) into the following "major groups":

- 0,1 Professional, technical and related workers
- 2 Administrative and managerial workers
- 3 Clerical and related workers
- 4 Sales workers
- 5 Service workers
- 6 Agricultural, animal husbandry and forestry workers, fishermen, and hunters
- 7, 8, 9 Production and related workers, transport equipment operators, and labourers
- X Workers not classifiable by occupation

These major groups are further divided and subdivided successively into "minor groups", "unit groups", and "occupational categories". Most rural people have occupations in major group 6, which has five minor groups:

- (a) Farm managers and supervisors
- (b) Farmers
- (c) Agricultural and animal husbandry workers
- (d) Forestry workers
- (e) Fishermen, hunters and related workers

The minor group farmers is defined as "workers conducting mixed farms to produce a variety of agricultural and animal husbandry products, or specialized farms to produce a particular type of agricultural or animal husbandry product, on their own behalf or in partnership" (ILO 1969, p. 138). The word "worker" in this definition is understood to refer to real persons in general, to the exclusion of legal persons. For our purposes, it is useful to restrict the use of the term "worker" to the sense of "agricultural worker", as described below, leaving "farmer" to refer to agricultural holders who are real persons.

The main occupation of a hired manager who is not the holder or a joint holder of the holding he or she manages or of any other holding is within the minor group farm managers and supervisors.

The minor group agricultural and animal husbandry workers includes all workers, who are not holders or managers but including members of holders' households, performing a variety of tasks in growing crops, breeding and raising livestock, maintaining farm structures and equipment, and assisting generally on farms by carrying out simple farming tasks (ILO 1969, p. 144). The term "agricultural workers" is preferred here to "agricultural and animal husbandry workers" in keeping with the definition of agriculture given in Chapter 2, which covers both crop and livestock production.

Two classes of agricultural worker are identified: permanent and occasional. A permanent agricultural worker is one whose services are utilized on a regular and continuing basis during the agricultural year, although he or she may engage in other work during a slack season. The total number of days worked (normally six months or more) has been used in some countries to distinguish between permanent and occasional workers. However, a permanent worker may actually work less than six months, especially in countries which have only one crop season. Therefore, countries need to determine the minimum number of working days or months which is to distinguish between permanent and

occasional workers in accordance with their own agricultural and other relevant conditions. Generally, an occasional worker is not expected to work on a regular, continuing basis, even though he or she may be hired on several occasions during the agricultural year.

#### 0413 Employment status

Persons engaged in the occupations described above are further classified by their employment status in those occupations, e.g., an agricultural worker may be an employee or an unpaid family worker. The United Nations recommends the following classes of employment status (UN 1980, pp. 96-97):

- (a) Employer
- (b) Own-account worker
- (c) Employee
- (d) Unpaid family worker
- (e) Member of a producer cooperative or a collective
- (f) Persons not classifiable by status

An employer is a person, including an individual or joint agricultural holder, who operates his or her own economic enterprise, engages independently in a profession or trade, and hires one or more employees on a permanent or occasional basis. An own account worker, on the other hand, operates his or her own economic enterprise, or engages independently in a profession or trade, but hires no employees. An employee is an individual who works for an employer, on a permanent or occasional basis, and receives remuneration in wages, salary, commission, tips, piece rates, or payment in kind. For example, a hired manager whose main occupation is classified in the minor group of "farm managers and supervisors" has the employment status of "employee". Finally, an unpaid family worker works a specified minimum amount of time (e.g., at least one-third of normal working hours), without pay, on the holding or other enterprise operated by another member of his or her household. Although unpaid family workers receive room and board, these benefits should not be considered pay, since they are not dependent on the work performed.

#### 0441 Wages paid

Wages paid include payments in both cash and kind. Wages in kind should include the cost of goods and services furnished to employees free of charge or at substantially reduced prices, such as clothing, food, beverages and dwellings.



### 5.3.5 Category 05: Land and Water

Information on agricultural land and water resources is classified in two divisions: 051 relating to holdings, and 052 relating to parcels.

#### 051101 and 052 Parcels

A parcel of a holding is any piece of land entirely surrounded by land, water, road, forest or other boundary which is not part of the holding. It may consist of one or more cadastral units, plots or fields adjacent to each other. By definition, any two parcels of the same holding are non-contiguous. The term parcel as used here should not be confused with the same term in cadastral work.

#### 051102 and 052101 Total area

The total area of a holding is the combined area of all its parcels, including the farmyard and land occupied by farm buildings, but excluding land rented to others by the holder and the holder's share of communal grazing land. The land area of the holder's residence is also counted in the total area of the holding if it is not located off the holding, e.g., in a residential area of a nearby village or town, and if it is not used solely for residential purposes. The total area of a holding practising shifting cultivation should include the area under crops during the reference period and the area prepared for cultivation but not sown or planted at the time of enumeration; it should exclude land abandoned prior to the reference period. For consistency, the total area of the holding should also equal the total area of its land in various use classes (described below for section 0524).

#### 0513 Land purchased or sold

The total amount paid for land purchased and the total amount received for land sold include any transfer costs incurred, e.g., for legal fees, title searches, and brokers' commissions. Any such transfer costs should also be reported separately for national accounts purposes.

#### 0514 and 0526 Shifting cultivation

Under shifting cultivation practices, a piece of land is first cleared with simple tools, with useful trees left standing and other trees and shrubs pruned down to stumps and debris burned. Land thus



cleared is cultivated for a number of years, using no fertilizers, until yields fall rapidly and weeds grow rampant, at which time the farmer abandons the land and allows it to restore itself through the natural growth of vegetation, which may take several years, before clearing and cultivating it again.

051813 Area actually irrigated

This item refers to the gross area of land purposely and actually provided with water, other than by rain, for improving the production of crops or pastures. The uncontrolled flooding of land by the overflow of rivers or streams should not be considered irrigation. However, rain water or water from uncontrolled overflow of rivers and streams may be collected and later used for irrigation. Land irrigated more than once during the agricultural year should be counted only once for this item, so that the total of irrigated and non-irrigated areas equals the total area in all land uses.

05152, 05162, 05172, 05183 and 05192 Costs incurred

Costs incurred for soil conditioners, cropland additions, pasture establishment, and irrigation and drainage facilities are classified as own account or contracted items. Own-account costs are for materials and hired labour used by the holding itself for these purposes, where the value of labour for unpaid family workers is imputed. Such own-account activities are considered to be ancillary activities of holdings and thus constitute part of agricultural production. The same activities, if contracted out to others, such as construction firm, are then not considered production of the agricultural sector but rather of construction.

0522 Area by tenure

Land tenure refers to the arrangements or rights under which the holder holds or uses the land of the holding. A holding may be operated under one or more forms of tenure, as described in the following subsections.

05221 Owned or held in ownerlike possession

Area owned is the area of a holding for which the holder possesses title of ownership and, consequently, the right to determine the nature and extent of its use. It does not include area owned but rented to others. Areas held in ownerlike possession include land for which the holder does not have title of ownership but which may be