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## **STATISTICAL UNITS**

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## A. An overview

1. The purpose of this document is to present a reference compendium of various types of statistical units and their definitions as adopted in international standards. It therefore, necessarily draws from or makes direct use of text from number of sources, such as *1993 System of National Accounts* (UN 1993); European Council Regulation (EEC) 696/93 of 15 March 1993 on the statistical units for the observation and analysis of the production system in the [European Economic Community 1993]; *Sixth Edition of the Balance of Payments and International Investment Position Manual* (IMF 2007); and *International Standard Industrial Classification (ISIC), Rev.4.* (UN 2006)

2. While it may be desirable to give a complete account of possible statistical units, their definition in theoretical terms and in actual statistical applications, their delineation and use in different statistical surveys, it will be impossible to do this at a worldwide level in a way that would allow their immediate application in any given country. There are many factors that play a role in defining the best statistical unit for a given form of data collection, inter alia, the structure of the legal system in a country, including regulations for the organization of businesses, the particular structure of the industries involved, the type of data collection involved, the purpose and targeted level of data collection etc. Statistical units discussed in this compendium can be taken to serve as models but the actual choice of the type of the statistical unit to be used by countries would depend upon national practice, type and the purpose of statistical activities involved.

3. The universe of economic entities is very vast. It varies from the small entities engaged in one or very few activities undertaken at or from one geographical location to large and complex entities engaged in many different activities that may be carried out at or from many geographical locations.

4. Economic entities engaged in the production of goods and services vary in their legal, accounting, organizational and operating structures. In large and complex entities, the units at which or from which production takes place are grouped for management, administrative, and decision-making purposes into hierarchical structures. Higher-level organizational units own, control, or manage the lower-level production units at which production decisions are made or production takes place. Economic entities may be structured along geographical, legal or operational lines. They may have one structure or several structures to carry out different functions or to serve different purposes.

5. In these entities, management of the financial affairs of the business usually occurs at a higher organizational level than does management of production operations. The accounting systems of businesses usually reflect this management structure by mirroring the hierarchy of management responsibility for the operations of the business. The accounts required to support the management and decision-making functions, whether financial or production, are usually maintained for the corresponding level of management responsibility.

6. From the point of view of the data collection, the most convenient way to obtain statistical data would be to collect them for entities for which complete sets of required records are available. This would allow statisticians to take advantage of information available from the accounting records of the producing entities and from administrative sources related to them. It would also result in statistics that, to a certain degree, serve best the interests of users because it makes it possible to relate administrative records to statistical surveys. However, since legal and operational structures of economic entities as well as their record keeping practices are not developed in most countries to suit statistical purposes, therefore international standards relating to guidelines for collection, reporting and statistical units have been adopted for the purpose of data collection and dissemination so that comparable national and international statistics can be produced.

7. The benefits of internationally comparable statistics can not be realised unless standardisation is applied to both definitions and classifications of transactors as well as transactions. If two or more statistical collections cover the same economic activity over time, meaningful comparison between data can not be made unless the object of comparison applies to the same units. The statistical unit serves as a tool to measure in an unduplicated and exhaustive manner several aspects of the economy. In general, the utility of using standard classifications of activities, institutional sectors and geographic regions is weakened if they are applied to set of transactors which are not defined in a standard way. While the argument is often heard that standardisation imposed by statisticians results in rigidity of format and interpretation, it is in fact a basic tool in a scientific approach to any enquiry.

8. Economic entities have numerous characteristics and a variety of data are required about them that may be classified in many ways, among the most important of which are by institutional sector, by activity and by geographical region. The need to classify statistical units by these characteristics requires that they be as homogeneous as possible with respect to institutional sector, economic activity or location, and this plays an important role in defining the statistical units.

9. Another requirement that should be met by units used in statistics is that data on their activities are available or can be meaningfully compiled. It is obvious that no goal is served, when statistical units are created, to discover that they can not be used because no data using them could be obtained. The availability of data is a necessary but not a sufficient condition for defining a statistical unit as administrative records may be available for all kinds of entities which may be statistically irrelevant.

10. Statistics must also reflect the organisational structure of production. Units used in statistics should preferably be perceived by their managers and the outside world as viable and operational unit, i.e. they should have a relative degree of autonomy. The purpose of delineating different statistical units is to identify the economic actors in the economy, i.e. the levels in the organisation of an enterprise at which the financial decisions are taken on the one hand and the levels at which production decisions are taken on the other. Production decisions will more often than not be taken for the homogeneous process.

11. Statistical units may be defined following many criteria namely, legal, accounting or organizational criteria; geographical criteria; and production criteria. The relative importance of these criteria depends on statistical purpose of compilation and dissemination. A legal or institutional criterion helps in order to define units that are recognizable and identifiable in the economy. In some cases, legally separate units need to be grouped together as they are not sufficiently autonomous in their organization. In order to define an institutional unit, accounting or financial criteria also have to be applied. Accounting criteria requires that an institutional unit keeps a complete set of accounts of its transactions. Organisational criteria states that enterprises are organisational units that have a certain degree of autonomy.

12. A unit can be geographically identified. Observational and analytical units are defined in such a way as to permit data to be compiled for local, regional and national economy. The rule regarding geographical criteria is helpful in order to permit consolidation and avoid omissions and duplications of units.

13. Production criteria suggest that entities engaged in similar economic activities be grouped together as it helps in analyzing homogeneous categories of goods and services produced in the economy following the application of homogeneous production technologies. Economic activities undertaken by statistical units are determined with reference to the specific categories of International Standard Industrial Classification of All Economic Activities (ISIC), Rev. 4.

## **B. Statistical units**

14. A statistical unit is an entity about which information is sought and for which statistics are ultimately compiled. It is the unit at the basis of statistical aggregates and to which tabulated data refer. These units can be divided into two categories:

- (a) *observation units* – identifiable legal/organizational or physical entities which are able, actually or potentially, to report data about their activities;
- (b) *analytical units* – entities created by statisticians (also referred to as *statistical constructs*), often by splitting or combining observation units in order to compile more detailed and more homogeneous statistics than it is possible by using data on observation units. Analytical units are not able to report data themselves about their activities, but there exist indirect methods of statistical estimation including imputation of such data. Examples of analytical units are unit of homogeneous production and local unit of homogenous production.

## **C. Collection and reporting units**

15. For operational purposes, a distinction is made between statistical, collection and reporting units. A *collection unit* is the unit *from which* data are obtained and by which questionnaire survey forms are completed. In fact, it is more a contact address than a unit. Sometimes the questionnaire is filled in by a central administrative office or an accountancy firm who provides this service to its client. Such information providing entities are collection units.

16. A *reporting unit* is the unit *about which* data are reported. Reporting units are those entities for which information is collected by means of questionnaires or interviews. Reporting units will, in most cases, coincide with the units for which statistics are compiled, like in the case of single-establishment enterprises where the enterprise and the establishment are identical. In the case of multi-establishment enterprises, however, the enterprise may make a separate return for each establishment, or each establishment may make a return for itself.

## **D. Legal entities**

17. Most societies provide for the legal recognition of economic entities, under laws that enable them to define and register themselves as legal entities. Legal entities are recognized by law or society, independently of the persons or institutions that own them. The characteristics of a legal entity are that: they own assets, they incur liabilities, and they enter into transactions with other entities. The legal unit always forms, either by itself or sometimes in combination with other legal units, the basis for the statistical unit.

18. An example of a legal entity is a corporation that owns or manages the assets of the organization, incurs liability on its own behalf, enters into transactions with other entities, receives and disposes of its income, and maintains complete set of accounts of its transactions.

## **E. Types of Statistical Units**

### **1. Institutional units**

19. Institutional units are the core unit of the System of National Accounts. All subsequent definitions embody the definition of this basic unit. An institutional unit may be defined as an economic entity that is capable, in its own right, of owning assets, incurring liabilities and engaging in economic activities and in transactions with other entities.

20. The main attributes of institutional units are:

- (a) An institutional unit is entitled to own goods or assets in its own right; it is therefore able to exchange the ownership of goods or assets in transactions with other institutional units;
- (b) It is able to take economic decisions and engage in economic activities for which it is itself held to be directly responsible and accountable at law;
- (c) It is able to incur liabilities on its own behalf, to take on other obligations or future commitments and to enter into contracts; and
- (d) Either it has a complete set of accounts, including a balance sheet of assets and liabilities, or it would be possible and meaningful, from both an economic and legal viewpoint, to compile for it a complete set of accounts if required.

21. There are two main types of units in the real world that may qualify as institutional units. First type of units are persons or groups of persons in the form of households. The second type of units are legal or social entities whose existence is recognized by law or society independently of the persons, or other entities, which may own or control them such as a corporation, non-profit institution (NPI) or government unit. Such units are responsible and accountable for the economic decisions or actions they take, although their autonomy may be constrained to some extent by other institutional units; for example, corporations are ultimately controlled by their shareholders. Some unincorporated enterprises belonging to households or government units may behave in much the same way as corporations, and such unit are treated as quasi-corporations when they have complete sets of accounts.

22. Households are defined as a small group of persons who share the same living accommodation, who pool some, or all, of their income and wealth and who consume certain types of goods and services collectively, mainly housing and food. While each member of a household is a legal entity, the household is an appropriate unit for statistical purposes because many economic decisions are made at the household level. The members of the household are all resident of the same economic territory.

23. The individual members of multi-person households are not treated as separate institutional units. Many assets are owned, or liabilities incurred, jointly by two or more members of the same household while some or all of the income received by individual members of the same household may be pooled for the benefit of all members. Moreover, many expenditure decisions, especially those relating to the consumption of food, or housing, may be made collectively for the household as a whole. It may be impossible, therefore, to draw up meaningful balance sheets or other accounts for members of the household on an individual basis. For these reasons, the household as a whole must be treated as the institutional unit rather than the individual persons in it. An unincorporated enterprise that is entirely owned by one or more members of the same household is treated as an integral part of that household and not as a separate institutional unit, except when it has a complete set of accounts in that case the enterprise is treated as a quasi-corporation.

24. The domestic economy is made up of the entire set of institutional units resident in the economy which are grouped into five mutually exclusive institutional sectors. The underlying criterion for grouping of institutional units to sectors is the homogeneity of units as regards to economic objectives, principal functions and behaviour.

25. The following entities are deemed to be institutional units:

(a) *Legal entities which have a complete set of accounts and autonomy of decision taking:*

(i) Corporations – legal entities that are incorporated for the purpose of producing goods and services for the market, that may be a source of profit or other financial gain to its owner(s) and are collectively owned by shareowners that have the authority to appoint directors responsible for their general management.

(ii) Other incorporated entities - these are legal entities incorporated in other forms such as cooperatives, limited liability partnerships and non-profit institutions. These are all treated as corporations in the 1993 System of National Accounts.

1. Cooperatives - entities in which each owner has an equal share of ownership.

2. Limited liability partnerships - partners in these entities are both owners and managers and have legally limited liability.

3. Non-profit institutions - legal entities that are set up for the purpose of producing goods and services, but their profits cannot be the source of income for the units that own them.

(iii) Unincorporated enterprises – legal entities set up by households or government units for the production of market goods and services. They may include public agencies which are part of general government or sole proprietorships and partnerships owned by households. They function in all (or almost all) respects as if they were incorporated, therefore they are termed quasi-corporations. In the System of National Accounts they are included together with corporations. .

(b) *Production units which do not necessarily keep a complete set of accounts, but which by convention are deemed to have autonomy of decision:* These units are unincorporated household enterprises that engage in the production of goods and services for own final use or for sale that are not legally separate from the households owning the unit.

26. In the majority of cases, an institutional unit will be a single legal entity. However, some corporations may be composed of legal entities set up for convenience as tax shelters or for other administrative reasons. In such cases, for statistical purposes it is inappropriate and unnecessary to regard each legal entity as a separate institutional unit.

27. If a corporation has a principal activity supported by units engaged in purely ancillary activities that are registered as separate legal entities, these should not be treated as separate establishments except when (a) such units are statistically observable (separate accounts of their production activities are readily available), or (b) these are located at geographically different locations from the corporation they serve.

28. Because the institutional sector classification distinguishes separate non-financial and financial sectors, it is necessary to define two separate institutional units, for an entity engaged in non-financial and financial activities as long as the necessary financial accounts and balance sheets are available for each of them. The creation of a financial and non-financial unit is warranted even if the two together have all the other attributes of an institutional unit and consolidated accounts are compiled for them as a single unit.

## **2. Enterprise Group**

29. Enterprises under the control of the same owner form a group to achieve economic advantages such as, economies of scale, control of a wider market, increase in the domestic productivity through more effective business management. Integration economies lead to formation of vertical groups, where an enterprise takes control over another enterprise either producing raw material or semi manufactures products (backward integration) or distributing and selling its final product (forward integration).

30. An enterprise group is a set of enterprises controlled by the group head. The group head is a parent legal unit which is not controlled either directly or indirectly by any other legal unit. It can have more than one decision-making centre, especially for the policy on production, sales and profits or may centralize certain aspects of financial management and taxation. It constitutes an economic entity which is empowered to make choices, particularly concerning the units which it comprises.

31. For certain observations and analyses it is sometimes useful and necessary to study the links between certain enterprises and to group together those which have strong ties with each other. It is also useful to recognize all (majority and minority) links between the group head and the controlled enterprise via the network of subsidiaries and sub-subsidiaries. This allows the group's entire organization to be depicted.

32. The enterprise group as a unit is particularly useful for financial analyses and for studying company strategies, however, it is too varied in nature and unstable to be adopted as a unit for statistical surveys and analysis.

### **3. Enterprise**

33. An institutional unit in its capacity as a producer of goods and services is known as an enterprise. An enterprise is an economic transactor with autonomy in respect of financial and investment decision-making, as well as authority and responsibility for allocating resources for the production of goods and services. It may be engaged in one or more economic activities at one or more locations. An enterprise may be a sole legal unit.

34. The enterprise is the smallest legal unit that is an organizational unit producing goods or services, which benefits from a certain degree of autonomy in decision-making, especially for the allocation of its current resources. An enterprise may, therefore, be a corporation (or quasi-corporation), a non-profit institution, or an unincorporated enterprise. Corporate enterprises and non-profit institutions are complete institutional units. On the other hand, the term “unincorporated enterprise” refers to an institutional unit - a household or government unit - only in its capacity as a producer of goods and services for which a complete set of financial accounts including balance sheet is available..

35. The enterprise is the basic statistical unit at which all information relating to its production activities and transactions including financial and balance sheet accounts are maintained and from which international transactions, an international investment position (when applicable), consolidated financial position and the net worth can be derived. It is also used for institutional sector classification of the 1993 System of National Accounts.

36. For institutional sector sequence of accounts, the enterprise is the basic statistical unit. However for production accounts, though the enterprise can serve as the basic statistical unit, the use of the establishment is preferable for two reasons:

- (a) The identification of more detailed and therefore more homogeneous categories of economic activities; and
- (b) The preparation of regional statistics.

### **4. Establishment**

37. The establishment is defined as an enterprise or part of an enterprise that is situated in a single location and in which only a single productive activity is carried out or in which the principal productive activity accounts for most of the value added.

38. In other words, an establishment can be defined, ideally, as an economic unit that engages, under a single ownership or control - that is, under a single legal entity – in one, or predominantly one, kind of economic activity at a single physical location - for example, a mine, factory or workshop.

39. The definition of an establishment allows for the possibility that there may be one or more secondary activities carried out in it, but these should be small in magnitude compared with the principal activity. If a secondary activity within an establishment is as important, or nearly as important, as the principal activity, then the unit is more like a local unit. It should be subdivided so that the secondary activity is treated as taking place within an establishment separate from that establishment in which the principal activity takes place.

40. In the case of most small and medium-sized businesses, the enterprise and the establishment will be identical. Some enterprises are large and complex with different kinds of economic activities undertaken at different locations. Such enterprises should be broken into one or more establishments provided that smaller and more homogeneous production units can be identified for which production data can be meaningfully compiled. Because the establishments of a multi-establishment enterprise are part of the same legal entity, financial transactions and positions cannot always be attributed to a particular location or activity, so the enterprise is more suitable for compilation of financial statistics.

41. The establishment is particularly useful as a statistical unit for compilation and dissemination of information related to its production activities which include the following:

- (c) Production of goods and services, revenues from sales of goods and services, all associated costs including employee remuneration, taxes on production and imports, subsidies, depreciation and a meaningful operating surplus;
- (d) Employment information such as numbers of employees, types of employees and hours worked;
- (e) Stock of non-financial capital used;
- (f) Changes in inventories and gross fixed capital formation undertaken.

## **5. Other Statistical Units**

42. The concept of the establishment combines both a kind-of activity dimension and a locality dimension. It is based on the assumption that the aim of the statistical program is to compile data classified both by activity and by geographical region. In circumstances in which precision in either the geographic or the activity dimension is not required, there are other units that may be used as statistical units for the compilation of production or production related statistics.

(a) *Kind-of-activity unit*

43. Although the way the enterprise unit is constructed and defined it may have already a certain degree of homogeneity with respect to its economic activities, some

statistics such as production statistics in general and input-output transactions tables in particular, may require a higher degree of homogeneity. For this purpose kind-of-activity unit is created. It allows statisticians to compile statistics that are as homogeneous as possible with regard to economic activities without restrictions in respect of geographic distribution. In order to obtain such homogeneous units, the enterprise must be partitioned into narrower and more homogeneous parts.

44. Kind-of-activity unit is an enterprise or part of an enterprise which engages in only one kind of productive activity or in which the principal productive activity accounts for most of the value added. As compared to the establishment, in the case of such a unit, there is no restriction on the geographic area in which the activity is carried out.

45. The aim of creating the kind-of-activity units is to meet, as much as possible, the homogeneity requirement. The other two requirements, namely, data availability and organisational structure, should however not be disregarded. Splitting enterprises into kind-of-activity units must be a trade-off between homogeneity of economic activities on the one hand and the data availability and organisational structure on the other. The three requirements in most cases are interrelated: the more homogeneous one defines the unit, the fewer data would be available, and less it will be perceived as a separate entity in the organisation. It is difficult to indicate how far splitting should go. It should certainly not go beyond a point where the entities obtained cease to be transactors in the economy.

46. Kind-of-activity units are useful as the statistical unit for compiling statistics where no geographic breakdown of the activities of enterprises is required. It has the required activity homogeneity. Each enterprise must, by definition consist of one or more kind-of-activity units. When partitioned into two or more kind-of-activity units, the resulting units must be more homogeneous with respect to output cost structure and technology of production than the enterprise as a whole. The enterprise's information system must be capable of indicating or calculating for each kind-of-activity unit at least the value of production, intermediate consumption, labour costs, the operating surplus, employment and gross fixed capital formation.

47. The kind-of-activity unit falling within a particular heading in the ISIC Rev.4 classification system can produce products outside the homogeneous group, on account of secondary activities connected with them which cannot be separately identified from available accounting records. Conversely, the kind-of-activity units classified under a particular heading in the classification system on the basis of a principal activity do not produce the entire output of homogeneous groups of specific products because the same products can be produced in secondary activities of kind-of-activity units falling under some other classification heading. The kind-of-activity unit may or may not be a reporting unit depending on the organization of the enterprise accounts of which it is a part.

(b) *Unit of homogeneous production*

48. Establishments are designed to be units that are more suitable for analysis of production in which homogeneity of the technology of production inputs and outputs plays an important role. The System of National Accounts recommends adopting a unit of homogeneous production as an appropriate analytical unit for purposes of input-output analysis. The unit of homogeneous production is defined as a production unit in which only a single (non-ancillary) productive activity is carried out. It is characterized by a single activity which is identified by its homogeneous inputs, production process and outputs. The unit of homogeneous production may correspond to an institutional unit or a part thereof; on the other hand, it can never belong to two different institutional units.

49. If it is desired to compile production accounts and input-output transactions tables by region, it is necessary to treat units of homogeneous production located in different places as separate units even though they may be engaged in the same activity and belong to the same institutional unit.

50. The unit of homogenous production is defined independently of the location of the activity. It is not normally observable and is more an abstract or conceptual unit underlying the symmetric input-output tables. In practice these units are reconstituted from the data collected for the observation units.

51. Most units are engaged in a combination of activities at the same time. If a unit carries out a principal activity as well as one or more secondary activities, it will be subdivided into the corresponding number of units of homogeneous production, and the secondary activities will be reclassified under different headings from the principal activity.

(c) *Local unit*

52. An enterprise often engages in productive activity at more than one location, and for some purposes it may be useful to partition it accordingly. Thus, a local unit is defined as an enterprise, or a part of an enterprise (for example, a workshop, factory, warehouse, office, mine or depot), which engages in productive activity at or from one location.

53. The expression “location” as it appears in the definition of the local unit and the establishment, can be interpreted in two different ways.

- (a) First, there is the pure location in the narrow sense of the word, i.e. a specific site like an individual address or even a room in a multi storey office building. It may happen that two or more non-contiguous sites around the corner of the same block or just across the street are treated as one location when no separate records are maintained for each site. In general, the distance between two sites has to be quite large in order to justify a separate location, especially when the sites fall within different most detailed geographical area for which series of data are to be compiled.

- (b) Second, the location may be the combination of all locations belonging to an enterprise within the geographical area. The identification of such a statistical unit allows for the distinction between provinces, states, counties, municipalities, townships are even smaller entities like mesh blocks. Therefore, if activities are exercised at two or more locations, e.g. in the same municipality, township or similar restricted geographic areas, covering all of these locations in one single local unit is acceptable from the point of view of the concept of the local unit.

54. Which of the two interpretations is to be used depends on the statistics in question. If, for instance, they are counting the number of factories or schools in a certain area, or if production processes are analysed, the location as an individual site is the appropriate unit; if, on the other hand, employment is the subject of statistics, all locations of an enterprise within the smallest geographic area could as well be taken together in one local unit. However, the decision on the definition of the location should be such that all related data may be collected to be analysed in an integrated manner.

(d) *Local kind-of-activity unit*

56. The local kind-of-activity unit is the part of a kind-of-activity unit which corresponds to a local unit. Each kind-of-activity unit must have at least one local kind-of-activity unit; however, the kind-of-activity unit can be made up of a grouping of parts of one or more local units. On the other hand, a local unit may in certain circumstances comprise solely a group of ancillary activities. In this instance, the 1993 SNA, Rev. 1 recommends that these ancillary units be treated as establishments. The local kind-of-activity unit corresponds to the establishment.

(e) *Local unit of homogenous production*

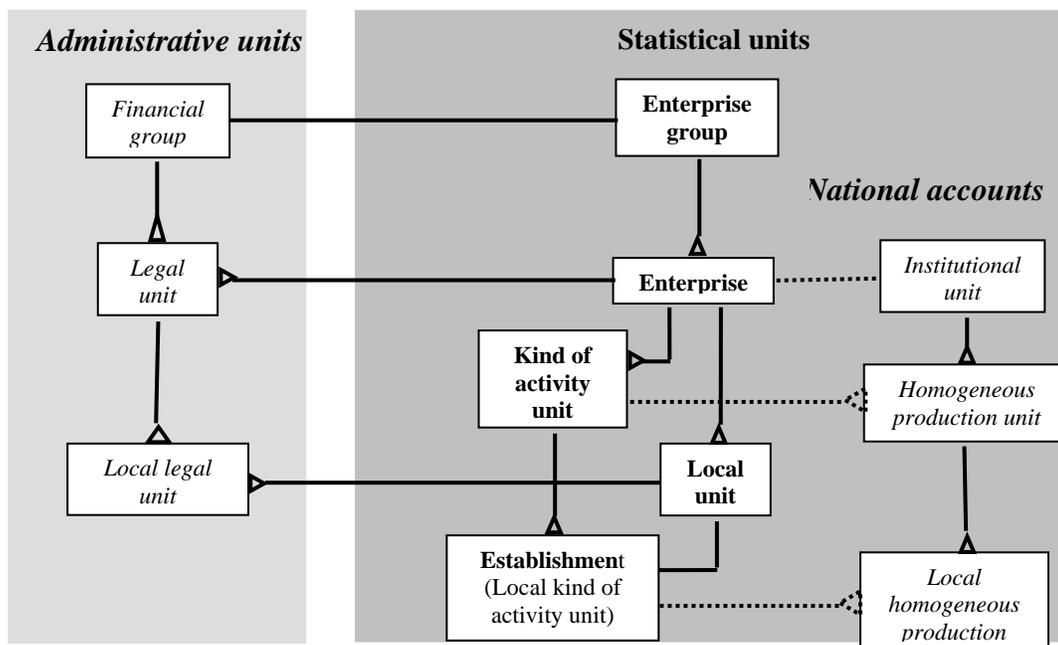
57. The local unit of homogenous production is the part of the unit of homogeneous production which corresponds to a local unit (Table 1). This corresponds to the definition of an establishment which would have only one homogenous activity.

**Table 1: Relationship between concepts of activity and location**

	<b>One or more locations</b>	<b>One single location</b>
<b>One or more activities</b>	Enterprise group Enterprise Institutional unit	Local unit
<b>Near one single activity</b>	Kind-of-activity unit (KAU)	Local KAU (establishment)
<b>One single activity</b>	Unit of homogeneous production (UHP)	<i>Local UHP</i>

58. The relationships between different types of statistical units are illustrated in the following diagram:

**Diagram 1: Relationship between different types of statistical units**



**Note: A triangle means one or more entities can be linked to the entity on the other side of the line**

## 6. Some special statistical units

### (a) Ancillary unit

59. A productive activity undertaken with the sole purpose of producing one or more common type of services for intermediate consumption within the same enterprise is defined as an ancillary activity. These are supporting activities undertaken within an enterprise in order to create conditions within which the principal or secondary activities can be carried out. Examples of ancillary activities are: keeping records, communication, purchasing of materials and equipment, personnel management, warehousing etc. These are typically services that are likely to be needed, to some extent or other, in most enterprises, whatever the nature of their principal activities.

60. The main objective of the economic statistics collected using statistical units is that it should depict the economic phenomenon as close to reality as possible. This would require that the ancillary activity is treated as an integral part of the establishments or enterprise it serves because an ancillary activity is not undertaken for its own sake, but in support of the principal or secondary activity it is associated with. It means that neither the inputs into, nor the outputs from, ancillary activities are recorded separately from others consumed or produced by the principal or secondary productive activities. This

way of recording the ancillary activity has the advantage of recording production processes in the way producers perform them, respecting their choices as to whether to perform ancillary activities themselves or to outsource them. Besides this approach focuses on the description of production processes as they are organized in reality, ignoring legal structures put in place for various reasons. The advantage of integrating the ancillary activities with the establishments/enterprise they support is that it allows depicting the actual structure of an economy in respect of specialization or integration of production processes.

61. This approach though depicts the production process as it is performed by the producers but it has the following disadvantages:

- (a) Firstly, as the ancillary activity is consolidated with the economic activity of the establishment it serves, it is not recognized by its own activity classification, and as a result its production is not recognized and recorded independently. This treatment does not allow an assessment of the contribution and role of ancillary activities in the economy to be made, and so the structural decomposition of gross domestic product (GDP) by economic activity will not be disclosed correctly.
- (b) Secondly, the regional GDP can not be compiled accurately when the unit undertaking ancillary activities and the establishments it serves are located in different regions.

62. To overcome the disadvantages mentioned above, it may be desirable and useful to recognise a unit undertaking ancillary activities as a separate establishment – an ancillary establishment - in the following cases:

- (a) When an establishment undertaking ancillary activities is statistically observable, in that separate accounts for the production it undertakes are readily available;
- (b) When the ancillary units are in a geographical location different from the establishments they serve. Such an establishment should be allocated to the industrial classification corresponding to its own principal activity.

63. Units undertaking ancillary activities should be recognized as separate establishments, in cases mentioned above, only when enterprise information system is capable of indicating at least the value of intermediate consumption, compensation of employees, gross fixed capital formation and employment. Statisticians should not make extraordinary efforts to create separate establishments for these activities artificially in the absence of suitable basic data being available.

64. The output of ancillary establishment should be derived on a sum of costs basis, i.e. all costs of its production including the costs of the capital used in the production. The output will be deemed to be market output when the parent enterprise is a market

enterprise and non-market otherwise. The output of the ancillary unit is treated as intermediate consumption of the establishments it serves and should be allocated using an appropriate indicator such as the output, value added or employment of these establishments (see Box 1).

65. An ancillary unit located abroad is always treated as a separate institutional unit and classified by sector and industry according to its own activity.

66. Holding companies are not ancillary units; the functions they perform to control and direct subsidiary companies are not ancillary activities.

**Box 1: Imputation of the output of the ancillary activity and its allocation to establishments**

The example considered in Case 1 below represents an enterprise with two establishments and one headquarter (ancillary activity). For simplicity, the entire outputs of establishments are assumed to be for the market so that their outputs can be derived from sales. The national value added (VA) of the enterprise should be

$$\begin{aligned} \text{VA} &= \text{output 1} + \text{output 2} - \text{total intermediate consumption (IC)} \\ &= 200 + 100 - (100 + 30 + 30) \\ &= 140. \end{aligned}$$

**Case 1: An enterprise with two establishments and one headquarter (ancillary) unit**

Enterprise comprising		
Establishment 1	Establishment 2	Headquarter
IC <sub>1</sub> = 100	IC <sub>2</sub> = 30	IC <sub>3</sub> = 30
VA <sub>1</sub> = 100	VA <sub>2</sub> = 70	VA <sub>3</sub> = 15 [compensation of employees, consumption of fixed capital and other taxes on production = 15]
Output 1 = 200	Output 2 = 100	Output3 (imputed) = 45

In this case the headquarter (ancillary activity) should be treated as a separate establishment and classified according to its own activity (ISIC 8211). Its output (imputed on cost basis) should be distributed to the establishments 1 and establishment 2 in proportion to their output. The output of headquarter so distributed to establishments shall be treated as their intermediate consumption. Case 2 shows the allocation of the headquarters' output to each establishment (2/3 of the headquarters' output is allocated to establishment 1 and 1/3 to establishment 2). The allocation has been done using the output as the indicator.

**Case 2. Treatment of the headquarter (ancillary) unit as an establishment**

	Establishment 1	Establishment 2	Headquarter (treated as an establishment)
	IC <sub>1</sub> = 100	IC <sub>2</sub> = 30	
<b>Output 3 consumed as IC (allocated in proportion to output)</b>	2/3 output 3 + 30	1/3 output 3 + 15	IC <sub>3</sub> = 30
	VA <sub>1</sub> = 70	VA <sub>2</sub> = 55	VA <sub>3</sub> = 15
	Output1 = 200	Output2 = 100	Output3 (imputed) = 45

After the allocation, the value added of the enterprise remains the same as before, which is equal to VA<sub>1</sub>+VA<sub>2</sub>+ VA<sub>3</sub> = 70 + 55 + 15 = 140, but the value added for each establishment is reduced by the share of the intermediate consumption of the headquarter unit imputed to it.

(b) *Special Purpose Entities*

67. With globalization and other legal and economic changes, businesses are developing different and more complex arrangements that go across national boundaries.

Some of these arrangements involve low-cost, lightly regulated corporate structures, labelled various names including special purpose entities (SPEs), special purpose vehicles (SPVs), brass plate companies, conduits, shell companies, and shelf companies. While such corporations were set up in first instance to create the semblance of outsourcing ancillary activities, the appearance of new arrangements of production and financing brought about ancillary corporations that have no significant production or employment. These are legal entities set-up for specific purposes such as the managing of the operations of companies and portfolios of assets and liabilities.

68. The SPEs are set up to carry out activities or series of transactions directly related to the specific purpose for which they are formed. The scope of their activities is broad. They historically originated in the non-financial sector but their use has spread to the financial and the government sectors. They commonly engage in activities such as providing asset and its management, corporate treasury services, trusts, public-private partnerships and securitization programs. Most SPEs have little or no employment, or physical presence. Many are set up in economies other than that of the parent company.

69. A specific reason for creating special purpose entities for securitisation is when financial institutions use SPEs to securitise loans by selling the loans into a SPE and issuing notes from the SPE to investors. This helps financial institutions to spread the credit and interest rate risk of their loan portfolios amongst a number of investors and it helps the investor to have recourse to a specific portfolio of assets. Alternatively, for risk management a corporation may use SPEs to legally isolate a high risk project/asset from the parent company and to allow other investors to take a share of the risk. Moreover, for asset management purposes a corporation is engaged in development of new high value product, it may create a special purpose entity which owns the intellectual products behind the product. This is done to prevent competitors accessing the technology through pre-existing licensing deals.

70. Resident SPEs should not be treated as separate institutional units unless they satisfy the criteria for qualifying as institutional units. Their output should be valued at cost if no market valuation is available. SPEs should be classified by institutional sector and industry according to the principal activity of the SPE.

71. Non-resident SPEs should always be treated as separate institutional units and classified by sector and industry according to their own activity.

(c) *Non-resident unincorporated units (branches)*

72. When a non-resident unit, not recognised as a legal unit, has substantial operations over a significant period in an economic territory, a branch may be recognised as a quasi-corporation. The institutional unit is identified for statistical purposes because the operations have a strong connection to the geographical area of operations in all ways other than incorporation.

73. Because of the undesirability of creating numerous artificial units, the definition of branches requires indications of substantial operations that can be identified separately from the rest of the entity. All or most of the following factors should be present for a branch to be recognised:

- (a) Undertaking or intending to undertake production on a significant scale based in the territory for one year or more.
  - (i) If the production process involves physical presence, then the operations should be physically located in that territory. Some indicators of an intention to locate in the territory include purchasing or renting business premises, acquiring capital equipment, and recruiting local staff;
  - (ii) If the production does not involve physical presence, such as some cases of insurance or other financial activities, the operations should be recognised as being in the territory by virtue of the registration or legal domicile of the operations in that territory.
- (b) Having substantial operations in the entity's own right (i.e. rather than as an agent on behalf of another entity).
- (c) Having operations being subject to the income tax systems of the economy in which it is located.
- (d) Having either a complete set of accounts including a balance sheet exists for the unit, or it would be possible and meaningful, from both an economic and legal point of view, to compile a complete set of accounts if they were to be required.

74. The identification of branches has implications for statistical reporting of both parent and branch. The operations of the branch should be excluded from the institutional unit of its head office in its home territory and should be reportedly consistent in both of the affected economies.

75. Some construction projects undertaken by non-resident contractor may give rise to a branch. Construction may be carried out or managed by non-resident enterprises, without the creation of a legal entity. For major projects (such as bridges, dams and power stations) that take a year or more to complete and that are managed through a local site office, the operations would usually satisfy the criteria to be recognised as a branch.

76. Services such as consulting, maintenance, training, technical assistance and health services can also be delivered on-site with sufficient presence to amount to a branch. If there were operations substantial enough to satisfy the criteria mentioned above, a branch should be recognised. If the branch criteria are not satisfied, then there would be international trade in services, or the person doing the work could be regarded as direct

employees of the customer of the service, depending on how the operations were managed.

76. Mobile equipments such as ships, aircrafts, drilling platforms and railway rolling stock, may operate across more than one economic territory. The criteria for recognition of a branch also apply in these cases. In many instances, the activity can be seen as having been undertaken from a base of operations located in another territory. In such cases, the operations are attributed to that unit and an artificial additional unit for non-resident operations is not appropriate. It is not the mobile equipment that could be a branch, but the operator of the equipment. However, in some cases, the operations in a territory outside the home base could be substantial enough to meet the definition of a branch. For example, a secondary base for servicing the fleet with long term presence and its own account may satisfy the definition of a branch. Similarly, a multi territory pipeline that passes through a territory without a separate legal entity in that territory would be recognised as constituting a branch or not depending upon the fulfilment of the criteria for recognition of a branch.

(d) *Multiterritory Enterprises*

77. Some enterprises operate as a seamless entity across several economic territories. An enterprise has substantial activity in more than one economic territory, but it can not be broken up into a parent and branch(es) because it is run as a seamless operation, can not supply separate accounts for each territory. Such enterprises are typically involved in cross-border activities and include shipping lines, airlines, hydroelectric schemes on border rivers, pipelines, bridges, tunnels and undersea cables.

78. Governments usually require separate entities or branches to be identified in each economic territory for more convenient regulation and taxation. As a result, multiterritory enterprises usually have some sort of official approval for their arrangements.

79. In the case of multiterritory enterprises, it is preferable that a parent and separate branch(es) be identified. If possible, enterprises would be identified in each territory of operation according to the principles for identification of branches as discussed above. If that is not feasible because the operation is so seamless that separate accounts could not be developed, it is necessary to prorate the total operations of the enterprise into the individual economic territories. The factor used for prorating should be based on available information that reflects the contributions to actual operations. For example, equity shares, equal splits, splits based on operational factors such as tonnage or wages could be considered. Where taxation authorities have accepted the multiterritory arrangements, a prorating formula may have been determined, which should be the starting point for statistical purposes. Prorating of the enterprise means that every transaction needs to be split into each component economic territory.

80. Some times an economic activity takes place in a territory which is under the joint jurisdiction of two sovereign States. The issues relating to recording of the economic activities in such a case are similar to that of the multi-territory enterprise. The same

technique of prorating should be used for enterprises operating in zones of joint sovereignty or joint jurisdiction also.

(e) *Ancillary Corporation*

81. An ancillary corporation may be defined as a subsidiary corporation, wholly owned by a parent corporation, whose productive activities are ancillary in nature: that is, are strictly confined to providing services to the parent corporation, or other ancillary corporations owned by the same parent corporation.

82. A corporation may find it advantageous for tax or other reasons to create a subsidiary corporation purely in order to perform certain ancillary activities for its own benefit. For example, it may create a subsidiary to which ownership of its land, buildings or equipment is transferred and whose sole function is to lease them back again to the parent corporation; or it may create a subsidiary to keep its accounts and records on a separate computer installation; and so on. In some cases, corporations may create "dormant" subsidiaries which are not actually engaged in any production but which may be activated at the convenience of the parent corporation.

83. Ancillary corporations are not treated as separate institutional units. When a parent corporation has created a single ancillary corporation, the latter should be treated as an integral part of the parent and its accounts consolidated with those of the parent. When a parent corporation has created several ancillary corporations, they should all be combined with the parent corporation to form a single institutional unit. Although legal units, those corporations are created artificially to avoid taxes, to minimize liabilities in the event of bankruptcy, or to secure other technical advantages under the tax or corporation legislation in force in a particular country. If these are treated as separate institutional units, this would suggest structural changes in the economy that did not take place in reality. However, an ancillary corporation is recognized as a separate institutional unit when it is resident in a different economy from that of any of its owners, even if the ancillary corporation is not, in practice, autonomous.

(f) *Trust funds and investment funds*

84. These are legal entities organized to pool securities or other assets on behalf of shareholders. The portfolios are customized to achieve specific investment characteristics, such as diversification, risk, rate of return, and price volatility. These entities earn interest, dividends and other property income, but have little or no employment and do not generate revenue from the sale of services. Trust funds owned by individuals if legally incorporated are also included here.

85. Trust funds and investment funds that are created as legal entities, and whether or not have employed persons to manage them, should be treated as institutional units. Their output should be valued at cost if no market valuation of their output is available. These units should be classified, separately from securitization vehicles, as "other financial intermediaries".

(g) *Restructuring agencies*

86. Restructuring agencies may serve public or private sector objectives. The two circumstances when restructuring agencies may be established for public purposes concern the restructuring of public sector enterprises, for example via privatization, and financial rescue operations in order to prevent a collapse of the financial system. In the latter case, the intent of the rescue may be either to save existing financial corporations from disappearance or, alternatively, to orchestrate their disappearance in an orderly fashion. These operations are government fiscal activities rather than financial intermediation and should therefore be reflected in statistics accordingly.

87. Restructuring can be divided into four types of economic activities:

- (a) Reviewing the rehabilitation plans and overseeing the liquidation or reorganization process of corporations (*financial advisory services*);
- (b) Reviewing the rehabilitation plans and overseeing the restructuring of non-financial production processes of corporations (*management consultancy services*);
- (c) Controlling and directing the rehabilitation plans and overseeing the liquidation or reorganization process of corporations by acquiring the assets and liabilities of the corporation (*holding company services*);
- (d) Securing financial stability through transactions in financial assets by acquiring, managing, and disposing of impaired assets of financial corporations (*asset management services on own-account*).

88. It is not necessarily the case that separate units will be set up to undertake these restructuring activities. In the case of privatization, for example, government may simply contract an investment bank to arrange the share flotation accompanying privatization. Nor is it necessarily the case that government directly controls the restructuring process. It is possible to have a central bank, in concert with commercial banks, rescuing other financial institutions. However this section is concerned with the case where a separate entity is established, which may be regarded as a separate institutional unit in some cases but in other cases will not comply with the requirements of being a separate institutional unit.

89. The restructuring unit may be set-up as a new unit, as observed in the case of financial rescue, or may be an existing unit, for instance a holding company acting under the control of the government, for example in the case of privatization.

(i) *Types of restructuring agencies*

90. There could be two types of restructuring, namely:

- (1). Restructuring the public sector, by the selling of corporations or subsidiaries, the selling of non-financial assets, the reorganization of establishments and changes in management etc.: this may cover various activities usually conducted by consultancy services, holding companies and so on.
- (2). Defeasance of impaired assets: this concerns financial corporations, often in the context of a banking crisis. Governments have been very active in such rescue operations, one of these forms of rescue being the setting up of specific entities in charge of managing the impaired assets and of their sale on the market, as well as in the financing of the process.

(ii) *Sectoral classification of restructuring agencies*

91. To be an institutional unit, a restructuring agency should be entitled to own assets, incur liabilities and engage in economic transactions with other units; and it must have a complete set of accounts.

92. The second step is to check whether the restructuring agency is a public unit (acting under the control of a government unit or of another public unit). If it is established specifically to implement government policy then there is clear evidence of government control. As noted above, though, restructuring may in certain circumstances be undertaken without setting up a special unit or may be initiated by other financial institutions.

93. The third step is to check whether the restructuring agency operates in a market or non-market manner. Agencies operating on a market basis are treated as public corporations; those operating on a non-market basis are treated as units within general government. The distinction between market and non-market production is whether the prices charged for output are economically significant or not. The criterion of whether the prices charged are economically significant may be difficult to establish (as with other financial services), in which case other criteria, such as the risk assumed by the agency, should be used.

94. A unit which functions entirely at the behest of government in carrying out a predetermined set of fiscal policy objectives may not determine its level of output in response to demand. Cases may occur in which the activities of the restructuring agency, may have some common characteristics with financial intermediation, but is not putting itself at risk. This is usually evidenced by a mismatch between the assets and liabilities and government's commitment to assume the ultimate liability. In these circumstances, the unit should be regarded as a non-market unit and classified in general government.

95. If the restructuring agency puts itself at risk in the transformation of the assets and liabilities of the units in difficulty and if it can determine the costs it can charge for the restructuring activity, it is treated as a financial corporation. Whether it is publicly controlled or purely private financial corporation is determined using the usual criteria.

96. Each transaction that government enters into with a restructuring agency should be examined to reflect the economic substance of the transaction in order to record the value and timing of it appropriately according to the circumstances and accounting rules prescribed within the framework of the SNA.

97. It is possible that a single restructuring unit controlled by government may undertake the restructuring of a number of enterprises which would then appear as subsidiaries of the restructuring agency. When government uses a restructuring unit to channel funds to a unit in financial difficulties and the restructuring unit derives its main resources from activities other than acting as an agent of government, these funds should be shown as payable and receivable by the government and unit concerned directly and not routed via the restructuring agency.

98. The output of restructuring agencies is measured either by the fees charged for services delivered (if it is deemed to be a market producer) or otherwise at cost.

## **G. Delineating statistical units**

99. The need to delineate statistical units arises in the case of large and complex economic entities in which the activities in which they are engaged fall into different classes of the ISIC or the production units of which they are composed are located in different geographical areas.

100. Enterprises also have a legal structure. They define and register themselves in terms of legal units for the ownership of assets. These legally constituted units or groups of units form the legal base of the business. An enterprise derives its autonomy from the common ownership and control of its resources irrespective of the number of legal units under which it registers them. They usually submit corporate tax returns to government revenue authorities for the legal units of their legal structure. They may use the same or different units for other administrative purposes such as remitting payroll or value-added taxes to government authorities

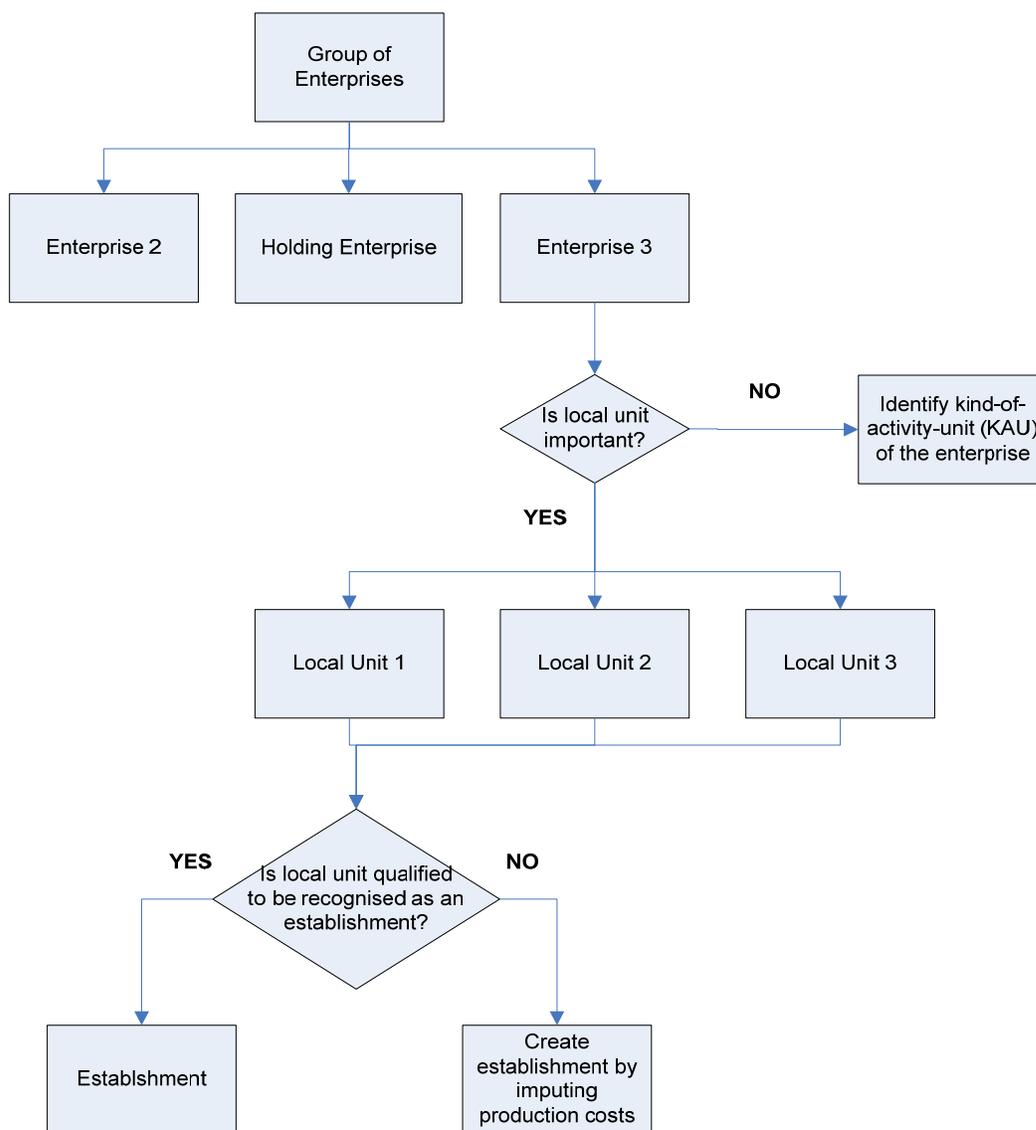
101. For most enterprises, the operational and legal structures often coincide and may even be embodied in a single unit at one location undertaking a single principal activity resulting most of the value added. In this case, the enterprise is assigned an ISIC activity category which reflects its principal economic activity. Principal activity may be determined by the greater value of product produced, value of sales or shipment or more accurately the greater share of value added.

102. For a large enterprise, the operational structure may be different from the legal structure, coinciding with it only at the highest level of the business. In such cases, the organizational and production units of the enterprise's operational structure may differ from the units of their legal structure.

103. Statistical units of large and complex enterprises may be delineated through a process referred to as profiling (See diagram 2). Profiling identifies the enterprise group, its legal structure, its operating structure, and the production and organizational units that are used to derive the statistical units whereby the holding company is treated as an enterprise separately from its associated enterprises. Once identified, the enterprise and its constituent establishments constitute the statistical units of the statistical structure.

104. For a multi-location enterprises, the statistical structure must be carefully profiled in a sequence of decisions: first, to identify the local units by their geographic areas and second, to decide if the local units should be recognised as establishments. Whether a separate establishment is recognised depends on two criteria: first, if the geographical location is necessary characteristic for the statistical programme; and second, if observable data on production is available.

**Diagram 2. Scheme of profiling and delineating procedure for an enterprise or group of enterprises**



105. Economic statistics draw upon the accounting records of businesses. The records that are maintained in support of financial decision-making, management and control provide the data required for financial statistics. Such records include consolidated profit and loss accounts and balance sheets of assets and liabilities. This is the level at which the enterprise is delineated, as those are the data that need to be compiled for the unit.

106. The source of information for production statistics and labour income statistics is often management and cost accounts. These accounts record operating revenues earned from the sale of goods and services produced and the associated costs, wages and salaries, depreciation, and operating profits.

107. Within the organizational structure of the enterprise, the level of autonomy will determine the nature of the data that will be available for the unit. Where there is an interest in the higher level of autonomy, in terms of decision-making, of the unit, rather than in the geographical location of the activity, the enterprise may be the preferred unit to be delineated and used as the statistical unit. This will be the case particularly if there is no interest in compiling comprehensive production statistics for sub-national geographical regions. However, if production statistics at a sub-national level of geographic detail are required, then it will be necessary to delineate the smallest unit that is as homogeneous as possible, in terms of activity and geographical location, for which revenues from the sale of goods and services, associated costs, value added and gross fixed capital formation undertaken can be compiled or estimated. This is the level at which the establishment (local kind-of-activity unit) is delineated as the statistical unit.

108. In those cases where the legal structure and the statistical construct based on production units do not coincide, statistical agencies will need to articulate the statistical structure and compile data with the help of surveys. The legal structure may consist of units created purely for tax purposes that are in no way relevant for the purpose of representing the producing units of the enterprise. However, if it is necessary to draw on tax records for the required data or if survey data need to be supplemented with tax data, statistical agencies will have to decide whether they can find a way to map the legal and statistical structure of the enterprise or whether they prefer to use the legal structure selectively as a proxy for the statistical structure.

109. The statistical structure delineates and identifies the units about which data are to be compiled. However, the data may have to be collected from higher - or lower-level units which are then described, as mentioned earlier, as collection entities. With increasing globalization, some multinational global enterprises are keeping integrated accounting records at the global or the regional level and it is becoming increasingly difficult to separate and extract complete accounts for all the activities taking place within each national economy, without obtaining the data from the main or regional head office of the global enterprise. Attributing the value of production and value added to domestic economies is particularly complicated when a global enterprise draws on production carried out in different economies, assembles it in one or another of them, and then manages and maintains accounts for the distribution centres in the different economies under a separate division of the global enterprise. The enterprise may, in the first instance, maintain separate accounting records for all its production activities and all its distribution activities in all the economies in which it operates and, only later, attribute revenues and costs to each economy for purposes of submitting tax returns to the revenue authorities.

## **I Classification of statistical units by kind-of-activity**

110. The kind-of-activity is defined as the type of production in which a unit is engaged. The kind-of-activity of a statistical unit is determined by the kind of its principal activity in terms of International Standard Industrial Classification (ISIC), Rev.4. If a different scheme of national classification of activities is followed, a full

correspondence at least at the 2-digit of ISIC, Rev. 4 (i.e. at the division level) should be sought.

111. An activity that contributes most to the value added of the unit, or the activity the value added of which exceeds that of any other activity undertaken by the unit is called its *principal activity*. It is not necessary that the principal activity accounts for 50 per cent or more of the total value added of a unit.

112. A *secondary activity* is an activity carried out by a unit in addition to the principal activity and whose output, like that of the principal activity, must be suitable for delivery outside the unit. The value added of a secondary activity must be less than that of the principal activity, by definition of the latter. The output of the secondary activity is a secondary product. Most units have at least some secondary activities.

113. A productive activity undertaken with the sole purpose of producing one or more common type of services for intermediate consumption within the same enterprise is defined as an *ancillary activity*. Examples of ancillary activities are bookkeeping, transportation, storage, purchasing, sales promotion, cleaning, repair and maintenance, security etc. At least some of these activities are found in every unit. By definition, an ancillary activity is not undertaken for its own sake but purely in order to provide supporting services for principal or secondary activities with which it is associated.

114. To determine the kind of activity of the statistical units in terms of ISIC Rev. 4, the following general principles should be followed:

- (a) The kind of activity of a statistical unit is determined by the kind of its principal activity. The secondary and ancillary activities (except when units undertaking ancillary activities are identified as separate establishments) are to be disregarded when classifying a unit;
- (b) If the unit is engaged in several types of independent activities, but the unit itself cannot be segregated into separate statistical units, its kind of activity should be determined according to the ISIC class with the largest share of value added by using the “top-down” method. The “top-down” method means that first the appropriate highest classification level (1-digit) should be determined, then the lower (2- and 3-digit) levels and finally the class (4-digit level). An example illustrating the application of “top-down” method is presented in the Annex ;
- (c) Ideally, the principal activity of the statistical unit should be determined by reference to the value added of the activity undertaken to produce goods sold or the services rendered. In practice, however, it is often not possible to obtain the information on value added for the activities resulting in production of individual goods or services. In such cases, the principal activity should be determined as an approximation by using other criteria, provided these are

applied consistently overtime to different activities involved. Such alternative criteria are as follows:

- (i) Based on output - output of the unit that is attributable to the goods or services associated with each activity; and value of sales, shipment or transfers to other establishments of those groups of products falling within each activity;
- (ii). Based on input - wages and salaries attributable to the different activities; or employment in the activities according to the proportion of persons engaged in the different activities of the unit.

115. Instances may arise where considerable proportions of the activities of a unit are included in more than one classes of ISIC. These cases may result from horizontal or vertical integration of activities.

*(a) Classification of statistical unit engaged in horizontally integrated activities*

116. Horizontal integration occurs when an activity results in end-products with different characteristics. This could theoretically be interpreted as activities carried out simultaneously using the same factors of production, for example production of electricity through a waste incineration process. The activity of waste disposal and the activity of electricity production cannot be separated in this case.

117. In case of horizontally integrated activities, it will generally not be possible to separate them statistically into different processes, assign them to different units or generally provide separate data for these activities, nor will rules relying on allocation of value added or similar measures are applicable. Alternative indicators, such as gross output, may sometimes be applicable, but there is no general rule for identifying the single activity that best represents the mix included in this horizontal integration.

*(b) Classification of statistical unit engaged in vertically integrated activities*

118. A vertically integrated enterprise is one in which different stages of production, which are usually carried out by different enterprises, are carried out in succession by different parts of the same enterprise. The output of one stage is used as input into the next stage and most of or only the output of the final stage is actually sold on the market. For example, an enterprise may use its own fishing fleet to catch the fish it then processes into frozen or canned food products, i.e., manufactured products. Similarly, an enterprise may grow corn to produce methanol. In these examples the vertical integration extends beyond different stages of manufacturing by integrating fishing or agriculture, with manufacturing.

119. The vertically integrated enterprise should generally be treated like any other form of multiple activities, i.e. a unit with a vertically integrated chain of activities should be classified to the class corresponding to the principal activity within this chain, i.e. the

activity accounting for the largest share of value added, as determined by the top-down method. If value added or substitutes for the individual steps in a vertically integrated process cannot be determined directly from accounts maintained by the unit itself, comparisons with other units (e.g. based on market prices for intermediate and final products) could be used. If it is still impossible to determine the share of value added (or its substitutes) for the different stages in the chain of production activities, default assignments for typical forms of vertical integration can be applied.

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## Identifying the principal activity of a reporting unit using the top-down method

### *The “top-down” method*

The top-down method follows a hierarchical principle: the classification of a unit at the lowest level of the classification must be consistent with the classification of the unit at the higher levels. To satisfy this condition the process starts with the identification of the relevant category at the highest level and progresses down through the levels of the classification in the following way:

- Step 1 - Identify the section which has the highest share of the value added
- Step 2 - Within this section identify the division which has the highest share of the value added within this section
- Step 3 - Within this division identify the group which has the highest share of the value added within this division (see below for exception in the case of wholesale and retail trade activities)
- Step 4 - Within this group identify the class which has the highest share of value added within this group

The application of this principle has been demonstrated with the following example:

Example: A reporting unit may carry out the following activities:

Section	Division	Group	Class	Description of the class	Share of value added (percentage)	
C	25	251	2512	Manufacture of tanks, reservoirs and containers of metal	7	
	28	281	2816	Manufacture of lifting and handling equipment	8	
		282	2821	2821	Manufacture of agricultural and forestry machinery	3
			2822	2822	Manufacture of metal-forming machinery and machine tools	21
			2824	2824	Manufacture of machinery for mining, quarrying and construction	8
	29	293	2930	Manufacture of parts and accessories for motor vehicles	5	
G	46	461	4610	Wholesale on a fee or contract basis	7	
		465	4659	Wholesale of other machinery and equipment	28	
M	71	711	7110	Architectural and engineering activities and related technical consultancy	13	

The principal activity is then determined as follows:

*Step 1. Identify the section*

Section C	Manufacturing	<b>52</b>
Section G	Wholesale and retail trade; repair of motor vehicles and motorcycles	35
Section M	Professional, scientific and technical activities	13

*Step 2. Identify the division (within section C)*

Division 25	Manufacture of fabricated metal products, except machinery and equipment	7
Division 28	Manufacture of machinery and equipment n.e.c.	<b>40</b>
Division 29	Manufacture of motor vehicles, trailers and semi-trailers	5

*Step 3. Identify the group (within division 28)*

Group 281	Manufacture of general-purpose machinery	8
Group 282	Manufacture of special-purchase machinery	<b>32</b>

*Step 4. Identify the class (within group 282)*

Class 2821	Manufacture of agricultural and forestry machinery	3
Class 2822	Manufacture of metal-forming machinery and machine tools	<b>21</b>
Class 2824	Manufacture of machinery for mining, quarrying and construction	8

The principal activity is therefore **2822: Manufacture of metal-forming machinery and machine tools**, although the class with the biggest share of value added is class 4659: Wholesale of other machinery and equipment.

If a “bottom-up” approach is used, the reporting unit would be classified to wholesale trade in class 4659 (wholesale of other machinery and equipment), based on the single largest share of value added at the class level. This would result in a reporting unit with a value added share of 52 per cent in manufacturing being classified outside of manufacturing.