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PROPOSALS FOR INTERNATIONAL RECOMMENDATIONS  
FOR CONSTRUCTION STATISTICS

Report of the Secretary-General

1. The attached document (ST/STAT/16) has been prepared in response to the wishes expressed by the Commission at its thirteenth session that, for the purposes of international recommendations, construction statistics and other industrial statistics should be dealt with separately.<sup>1/</sup> It has been circulated to selected national statistical offices and regional organizations for comments; the most important of the comments received are summarized in document E/CN.3/370.
2. The Conference of European Statisticians in organizing a meeting on construction statistics (jointly with the ECE Committee on Housing, Building and Planning) to be held in December 1967. The report of this meeting will be available to members of the Commission during the session as a background paper.

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<sup>1/</sup> The other industrial statistics are dealt with in document E/CN.3/366.

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PROPOSALS FOR INTERNATIONAL RECOMMENDATIONS  
FOR  
CONSTRUCTION STATISTICS

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## INTRODUCTION

1. The Statistical Commission at its eleventh session adopted a resolution concerning international recommendations in industrial statistics. These recommendations were published in 1960<sup>1/</sup> and attempted to cover construction statistics as well. Later it was realized that while some aspects of construction statistics might be discussed together with the industrial statistics, many others need special treatment. The Statistical Commission at its thirteenth session confirmed the view that construction statistics and other industrial statistics need to be dealt with separately<sup>2/</sup>.

2. The Statistical Commission at its thirteenth session discussed the study "Construction Statistics" and requested the Secretary-General to revise the document in the light of the comments received from the countries and of its own discussion, and to publish it. Subsequently the study was revised and published<sup>3/</sup>. It was agreed that the concepts, methods and techniques outlined in this study are very useful in assisting the development of construction statistics. The Commission also felt further clarification was necessary on a number of issues, particularly the concept of the statistical unit, before international recommendations could be developed.

3. Separate recommendations are necessary for the construction statistics because of the specific problems of the construction industry. Some of the most important specific problems of the construction industry are the following:

(a) The extremely mobile character of construction activity. The main activity takes place at a construction site which, even for the same enterprise, is constantly changing.

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- <sup>1/</sup> International Recommendations in Basic Industrial Statistics. A Guide to Objectives and Definitions. Statistical Papers, Series M, No. 17, Rev. 1.
- <sup>2/</sup> Statistical Commission Report of the Thirteenth Session, para. 58.
- <sup>3/</sup> Construction Statistics. Studies in Methods. Series F, No. 13; United Nations, New York, 1965.

(b) The construction work is, in most countries, carried out by a wide variety of units including large private or public construction enterprises, small private construction enterprises, government departments, individuals working on own account and other units whose main activities lie in other industries, but which undertake construction work.

(c) Many of the small units go in and out of business quite regularly in response to changing economic and seasonal factors. In addition they can change their address quite frequently and, moreover, often operate from premises, particularly dwellings, not readily identifiable as the business offices of a construction unit. Thus identification of many of the statistical units involved in construction is very difficult.

(d) Another major feature of the construction industry, is the prevalence of subcontracting. The main distinction is between the main contractor who undertakes the work for the investor and the subcontractors who work for the main contractors. However, the situation in reality is fairly complex as often the same enterprise will act as main contractor on one project but as a subcontractor on another. Also on a particular project a main contractor may undertake all the work directly with his own labour or subcontract out the whole or part of the project. The subcontractors can thus be general builders and contractors or specialized enterprises who do only plumbing work or electrical work, etc. In this complex situation much care is necessary to ensure that there is no double-counting or omissions in the data which are obtained.

(e) Another major feature of the construction industry is that the period of production of the products are relatively long, so that for a particular inquiry period it is necessary to measure the amount of work done on unfinished products. This means that what is an exceptional case in other industries is a general problem here.

(f) Again the unique character of much of the construction production is that a very large part of the production is made up of individual "made to measure" products. This makes the use of comparable prices very difficult and even in the case of exactly the same type and size of buildings these might have completely different costs and prices, because of the differing circumstances at different locations (e.g. the transport cost of materials, the availability of labour, the soil, the slope of the ground).

(g) The fact that a major part of the work in the construction industry is carried out in the open air makes it very sensitive to changes in the weather and thus in many countries activity ceases or is at least curtailed during the winter or rainy season.

4. This paper contains the draft proposals for the Statistical Commission concerning recommendations on the construction statistics. Chapter I deals with the problems of the scope, coverage and the statistical unit in construction statistics. Chapter II contains a list of statistics recommended

to be gathered and published by countries with developed construction statistics. An indication of the characteristics of the statistical unit by which these statistics should be classified is also given. Chapter III contains the definitions of the items of data recommended for collection and publication. The annex to the paper contains recommendations adapted for countries beginning to develop their construction statistics.

5. Statistics of construction are required for a number of purposes and the information collected should be designed to meet these purposes as far as possible. While there are several distinct major purposes these are of course interconnected and any data collected are certain to serve a variety of purposes. Data on construction have to be provided to meet economic planning and administrative needs. The planning of the construction activity is very important in every country. A large part of new fixed assets are products of the construction industry. These have an important part to play in solving many social problems and are important factors in the development of the economy generally. In countries where the government is responsible for the planning of a considerable part of the expenditure on construction activity, construction statistics are required to aid in implementing the plan.

6. Construction data are needed for general economic analyses and because of the size and importance of the construction sector in the economy of most countries, data are required in order to build an adequate picture of the whole economy. This will include data relating to production, employment, input, capital investment, income, and stocks. These data are also required in order to build up a system of a national accounts. In some countries data on capital investment in construction cannot be (or can only partly be) obtained from the organizations or persons undertaking the expenditure and the output of construction work has to be used to measure capital formation. This is the case especially with private expenditure on dwellings.



7. There is also an interest in the structure, organization and efficiency of the industry itself. These are the aspects which will be of most interest in the construction industry and in the construction enterprises themselves. In order to examine the industry, data on its legal organization, employment, input costs, output, equipment, etc., are required.

8. To meet all these needs data are required infrequently, annually, and monthly or quarterly. As far as possible, the inquiries of various frequencies should be integrated. It is because of the need to emphasize this interdependency that it is thought suitable to include all three types of inquiries in the present recommendations. Of course it might be necessary to use ad hoc inquiries in the investigation of some special problems, but ad hoc inquiries are outside the scope of the present paper.

CHAPTER I

PROBLEMS OF THE SCOPE, COVERAGE AND THE STATISTICAL UNIT IN CONSTRUCTION STATISTICS

9. This chapter discusses the scope, coverage and the statistical unit in basic and current construction statistics.

Scope

10. In the International Standard Industrial Classification<sup>1/</sup> the construction industry is classified to Division 4 and defined as follows:

"Construction, repair and demolition of buildings, highways, streets and culverts; heavy construction of such projects as sewers and water mains, railway roadbeds, railroads, piers, tunnels, subways, elevated highways, bridges, viaducts, dams, drainage projects, sanitation projects, aqueducts, irrigation and flood-control projects, hydroelectric plants, water power projects, gas mains, pipelines and all other types of heavy construction; marine construction such as dredging, under-water rock removal, pile driving, land draining and reclamation, construction of harbours and waterways; water wells; airports; athletic fields; golf courses; swimming pools; tennis courts; parking areas; communication systems such as telephone and telegraph lines; and all other construction, whether undertaken by private bodies or governmental authorities. Special trade contractors in the field of construction, such as carpenters, plumbers, plasterers and electricians are also included in this group.

This division does not include construction, repair and demolition work undertaken as an ancillary activity by the staff for the use of an enterprise classified in any other division of the classification. Escavating, overburden removal, shaft sinking and dredging, when undertaken in connexion with mining, are classified in the appropriate group of Division 1 (Mining and Quarrying)".

11. This classification is by kind of economic activity and is designed to include units which either undertake only construction work or whose main activity is construction. Here lies one of the difficulties with the enumeration of construction activity, because construction activity is not carried out in such well-organized and defined units as in the case of mining or manufacturing industries. This is the reason why in many countries statistics are collected to

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<sup>1/</sup> International Standard Industrial Classification of all Economic Activities, Series M, No. 4, Rev. 1, UN Statistical Papers.

cover the whole of construction activity irrespective of the main economic activity of the producing unit.

12. The whole of construction activity is shown in the following diagram:

Whole construction activity (enumeration through sites, projects)

Contract construction carried out by			Own-account construction carried out by		
1.) General builders and civil engineering contractors.	2.) Special trade contractors.	3.) Establishments classified to industries other than construction (construction for sale).	4.) Independent units, of establishments or other organizations, which are not part of the construction industry proper.	5.) Establishments or other organizations not classified to the construction industry, with no independent construction unit.	6.) Individuals.

All units carrying out construction activity  
(enumeration of the units carrying out the  
construction activity)

13. It is necessary to see clearly the distinction between construction activity and the construction industry. A classification system such as the ISIC which is linked closely with the establishment (or kind-of-activity unit) as the statistical unit, is not able to fully accommodate construction activity as a separate entity. The reasons are that construction is carried out as a secondary activity both for own account and for sale and by individuals on own account.

14. The "Proposals for Revising the SNA 1952" (E/CN.3/345) proposes to include the following as part of the construction industry:

- (a) The present ISIC 400 - Construction;
- (b) Preparing Mining sites, at present part of ISIC 1;
- (c) Significant own-account construction.

15. Taking into account the above considerations the revised draft proposal<sup>1/</sup> for the revision of the ISIC sets out the construction industry as follows:

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<sup>1/</sup> These proposals can be found in Conf.Eur.Stat./WG.28/2, 30 March 1967.

DIVISION	SUB-DIVISION	MAJOR GROUP	DRAFT NOMEN-CLATURE	CORRESPONDING MAJOR GROUP OR GROUP OF PRESENT ISIC
5	50	500	Construction	Includes present ISIC 40, including landscaping from group 012, Agricultural services and independently organized services primarily engaged in preparing sites for mining from division 1. Also includes own-account construction carried on by units of a parent enterprise, government, etc. which can be treated as separate establishments or kind-of-activity units.

16. In the diagram (para. 12) the whole of construction activity is broken up into six parts according to the units which are carrying out the construction work:

- A. Contract construction by
  - 1.) General builders and civil engineering contractors;
  - 2.) Special trade contractors;
  - 3.) Establishments classified to industries other than construction and carrying out construction work for sale;
- B. Own-account construction carried out by
  - 4.) Independent units, of establishments or other organizations which are not part of the construction industry proper;
  - 5.) Establishments or other organizations not classified to the construction industry, with no independent construction units;
  - 6.) Individuals.

In accordance with the general principles of ISIC (i.e. that ISIC is an establishment or kind-of-activity unit classification) the new proposals for the revision of the ISIC include in division 5 those units which are classified under 1.), 2.), and 4.) above.

17. Because of the complexity of the situation in construction activity it is not possible to develop one definite recommendation on scope, coverage, statistical unit and the items of data to be gathered. A set of recommendations can, however, be formulated and the various possibilities in terms of scope, coverage, statistical unit and items of data to be gathered and tabulated can be put forward. Of course it is most important to cover the construction industry proper (1.)+2.) in the diagram in para. 12) in the construction inquiries, and in addition to this the own-account construction carried out by independent units (4.) in the diagram in para. 12). This will mean that the whole of the construction division of the new ISIC will be covered. However, in most countries, data are necessary for planning the whole of construction activity and the resources it calls upon (materials, labour). For this purpose, in some inquiries, the scope

might be extended to include, in addition to division 5 (new ISIC), the own-account construction carried out by establishments classified to other industries which have no independent construction unit (5.) in the diagram in para. 12). In other cases the scope might even be extended to the whole of construction activity (i.e. 1.) to 6.) in the diagram in para. 12).

18. It is clear that for each particular scope recommendations are required as to the frequency of the inquiries, the coverage, the statistical unit and the items of data to be collected. This approach leads to the following set of recommendations regarding scope. These are set out below and as can be seen inquiries of different frequencies are appropriate to each particular scope.

Scope	Column numbers in diagram in para. 12	Frequency		
		Infrequent (basic) inquiries	Annual inquiries	Quarterly or monthly inquiries
A. Using the unit which carries out the work <u>1/</u>				
i. Construction industry proper	1.) and 2.)	x	x	x
ii. Own-account construction by establishments with independent units	4.)	x	x	
iii. Own-account construction by establishments with no independent construction unit	5.)	x	x	
B. Using the site (or project) unit <u>1/</u>				
i. Whole construction activity	1.), 2.), 3.), 4.), 5.), and 6.)		x (limited data)	x

1/ The statistical units which are recommended for each of these scopes are dealt with later in the paper.



19. Thus, using the units which carry out the work, infrequent (basic) inquiries would cover the construction industry proper plus own-account construction carried out by both establishments with independent construction units and by establishments with no independent unit. The same scope would apply annually. In addition, annually, the whole of construction activity could be covered, using the project or site unit, for a very few items of data. For more frequent than annual data (i.e. quarterly or monthly) the construction industry proper could be covered using the unit carrying out the work, and, using the project or site unit, the whole of construction activity could be covered for a very limited range of data.

20. The construction work done for sale as a secondary activity of establishments classified to other industries (item 3.) in the diagram in para. 12) is not covered except from the project (site) unit approach. The same applies to the own-account construction by individuals on own account. The reasons for their omission from the approach through units carrying out the work, are practical ones; they are difficult to identify and any information obtained would have to be estimated, moreover, in most countries, the amount of work carried out by these units is negligible or at least not very significant.

#### Coverage

21. The coverage of any construction inquiry depends, among other things, on what it is feasible to cover, on the method of enumeration, on the statistical unit selected, and on the administrative arrangement existing in the country. In case the selected scope is the construction industry proper then while in the infrequent inquiries the coverage might be all statistical units in the country, the annual and more frequent than annual inquiries might cover the large statistical units only.

22. The aim of the infrequent inquiry is to provide, with reasonable accuracy, benchmark data regarding the activities of the construction industry (the new ISIC

division 5). These aims might be accomplished either by complete enumeration of all the statistical units falling within this scope or by enumeration of a sample of these units selected with known probability. The limited availability of resources, the great number of smaller statistical units, and the non-sampling errors in obtaining data for these small units may often make it desirable to cover such units less intensively than the larger units. Generally, it is recommended that fewer items of data be gathered for the small units. Although, in principle, the field to be covered by the data should include all statistical units regardless of size, legal or economic organization, the very small units that are not in operation at the time of the enumeration would normally be excluded.

23. Most of the data gathered from an annual inquiry should relate to the large construction units, which usually account for the major share of the construction activity in most countries. When selecting the large units it should be borne in mind that for a few important items of data the whole construction industry, or a large part of it, might be covered by means (e.g. administrative records, investment statistics, etc.) other than a detailed annual inquiry. But in some countries, because of the large share of small units in the work done, the annual construction inquiry may have to include the small units as well (possibly by sampling) for a few items of data.

24. In the case of the quarterly or monthly inquiries, which are needed to produce short-term indicators to analyse and evaluate the development of the construction activity, a few items of data from the large statistical units will probably be sufficient.

25. If the selected scope includes the "Own-account construction, carried out by independent units, of establishments and other organizations classified to industries other than construction" then the units thereby included are, in most countries, large units with significant production, this being the precise reason

why they are organized as independent units. (These large independent units are organized in most countries by railway, road maintenance, electricity, and similar enterprises.) Therefore the coverage which might be recommended in infrequent and annual inquiries is the full coverage of all these units.

26. If the selected scope includes the "Own-account construction carried out by establishments or other organizations not classified to the construction industry, with no independent construction unit" then the coverage to be used very much depends on the possibility of identification of this activity. The cheapest, and perhaps the most feasible, way to cover the construction activities of these establishments in the case of infrequent inquiries, might be to connect the collection of data (usually a very few items) with the basic economic censuses and, in the case of the annual inquiries, to link it with the annual inquiries in the different economic fields (e.g. annual industrial surveys, trade inquiries etc.). This means that, in the case of infrequent inquiries, the recommended coverage for this scope would be those establishments with own-account construction which are covered by the basic economic (or similar) censuses. For annual statistics the coverage would be those establishments with own-account construction which are covered by the different annual inquiries. Of course it might happen that in some countries no economic censuses are organized, or that the annual inquiries do not cover all the important economic fields where considerable own-account construction is carried out by the establishments (e.g. agriculture). In this case a special survey might be organized for the omitted field, covering the large establishments, which will usually be the ones involved in own-account construction. Alternatively a sample survey might be organized. Summing up, the recommended coverage will depend mainly on the organization of the statistical inquiries in the country concerned.

27. If the selected scope is the whole of construction activity, then the approach in most countries is mainly through administrative records (especially

building permits). Most countries have an established system of building permits. In almost all countries, there is a legal requirement to ask for a permit before starting construction work and in a number of countries permits are also required before a building can be occupied after completion (i.e. a permit of occupancy). These permit systems have different coverages (and even scopes) in different countries. Some cover residential buildings only, others cover all kinds of buildings but not civil engineering works. In some countries the cities only are covered, whereas in others the whole country is covered. Taking into account that, if the scope is the whole of construction activity, the approach will be through the site (project), then the proposed coverage for more frequent than annual inquiries will be that activity which is covered by the permit system. For annual inquiries the coverage could be that activity covered by the permit system and in addition the most important areas thereby left out might be covered by special surveys, usually sample surveys. (The same approach could also apply to the omissions in terms of scope or geographical area which result from the use of permits.)

#### The Statistical Unit

28. The statistical unit is the entity for which the required items of data are to be gathered. The reporting unit, which actually makes the return, might be the same as the statistical unit, but could be different. For example, if the statistical unit is the construction enterprise then the reporting unit is usually the same. If the statistical unit is the site, then the reporting unit could be the enterprise or it could be the different municipal and district offices responsible for administering the permits applicable to the site work.

29. In connexion with the other industrial inquiries (covering mining, manufacturing, etc.) usually three kinds of statistical units are of particular interest - the establishment, the local unit and the kind-of-activity unit. All

three of these units are distinguished from the legal entity, which is the owning or controlling unit and may consist of one or a number of establishments, local units, or kind-of-activity units - although in a great majority of cases all these units are identical. The International Recommendations on the 1963 World Programme of Basic Industrial Statistics recommends the use of establishments or local units, but for construction the following is stated:

"In view of the customary movement of labour, capital equipment, etc., from one construction site to another, it is suggested that no restriction on the location of the construction activities be imposed in defining the statistical unit. That is, all the activities and resources of the legal entity involved in construction for the account of others (contract construction) should be included in the statistical unit. It may, however, be possible to obtain certain items of data, such as work put in place, related to specific areas".

This remark, in effect, calls for the use of the following statistical units; legal entity (enterprise); permanent offices; kind-of-activity units; individual project (site of construction). In addition to this it will be necessary to discuss the establishment and local unit as well, because of certain secondary activities. While recognizing that the choice of statistical unit depends on the economic and institutional organization of the country concerned and that the statistical unit is at the same time a function of the uses for which a particular item of data is desired and the relative speed or ease of collection, it is still possible to make some recommendations as to which statistical unit seems to be most useful for different scopes and different items of data. The following remarks deal with the different statistical units particularly in the light of what was said above on the scope of the construction activity.

(a) The enterprise or similar units (e.g. developers of residential projects etc.)

30. The most commonly used definition of an enterprise is in terms of the legal entity - i.e., the smallest, legally defined entity engaging in economic activities. The legal entity is an individual proprietorship or any association of persons or

organizations owning and carrying on business undertaking. Included are forms of association such as the partnership, co-operative, firm, company, corporation or like forms of association or organization. In general, this unit is a legally recognized entity possessing the right to conduct business in its own name - i.e. enter contractual agreements, own property, incur liability for debts, establish bank accounts, etc. In those countries where business enterprise is, for the most part, owned and controlled by the government, the "enterprise" is analogous to the "legal entity" being usually defined as the unit having a single administration with the right to conclude contracts, an independent current bank account, and a self-contained system of bookkeeping with independent balance sheets and profit-and-loss statements.

31. The enterprise in the construction industry usually operates from a fixed address which consists of an office only while most of its other activities are on the construction sites. These enterprises usually also operate builder's yards for storage of equipment and materials, and repair depots. These may not be at the same address as the office, although they may be in the same locality. In addition to these, some enterprises carry out secondary activities such as the fabrication of joinery or of steel sections or of prefabricated units, or the quarrying of minerals which they require for their own use, or they may prefabricate whole buildings which they then erect. The treatment of these secondary units will be discussed later. Enterprises will frequently set up temporary offices (and this may be for a period of years) and some enterprises will also have a number of permanent regional offices from which to organize their activities in different parts of the country.

32. If the selected scope is the construction industry proper most of the countries use the enterprise as the statistical unit. This certainly indicates that if the scope of the inquiry is the "construction industry proper" then one possibility is to choose the enterprise as the statistical unit. In advancing

this proposal it is also necessary to take into account the items of data to be gathered. In all cases when the programme of the inquiry is large (i.e., if it includes items like the number and capacity of machinery, expenditure on fixed assets, materials used, value added) then the enterprise might be a good choice.

33. But as already mentioned construction enterprises may have units carrying out secondary activities (manufacture of building material etc.) and these units, if they have separate accounts, will be covered under other industrial inquiries (e.g. manufacturing census). It is clear that it is necessary to avoid cases of overlapping between recommendations in related fields. Therefore a statistical unit should be adopted which is consistent with the statistical unit recommended in other fields. This is the kind-of-activity unit (which is the same as the establishment - the recommended statistical unit for other sectors - but with no restriction imposed as regards to location of activity) which is discussed below. In most cases this will mean the construction enterprise itself, but when the construction enterprise includes an establishment carrying on a secondary industrial activity then the kind-of-activity unit will be the construction enterprise minus this establishment.

(b) The kind-of-activity unit

34. The kind-of-activity unit is, ideally, an economic unit which engages, under a single ownership or control, in one or predominantly one kind of industrial activity. This unit differs from the establishment (discussed later) in that it discards the single location restriction. As it says nothing on location it therefore seems to be a suitable unit to use for construction statistics.

35. As already pointed out in para. 33, the kind-of-activity unit can be used as the statistical unit when the scope is "the construction industry proper". If the scope is extended to cover the "own-account construction, carried out by independent units, of establishments or other organizations, which are not part of the construction industry proper" then these (usually large) own-account construction units are also in most cases kind-of-activity units.

(c) Permanent offices

36. In some countries the large enterprises operate through a number of permanent offices. Except for the normal supervisory functions of the enterprise head offices these permanent offices might be independent i.e., they may have their own accounts, they may organize their own stores or plant depots or their own transport, etc. In such cases these permanent offices might be used as the statistical unit, but there might be difficulties in collecting data on some items such as overhead cost or the purchase of major pieces of plant and equipment the records for which may be with the head office. The only advantage in using the permanent offices would be that they might yield a geographical breakdown of the data, but the problem might then be that the kind of geographical breakdown provided may not be what is needed.

(d) The individual project (site)

37. The individual project (site) can usually only be defined as the building or structure for which a separate permit or license is required. The most common situation is that each individual project is at a separate location, thus there is a single permit or license for the work being carried out at each working place. This is not always true however, and it is possible in some kind of building developments for several projects (or sites), as defined above, to be on the same working place. This would occur for example if separate licenses are required for different kinds of buildings such as dwellings, schools and shops. The information available in this kind of situation may be limited if there is a common pool of materials and labour for the whole development. However, even if the most common situation exists (i.e. one site and one permit) there can be additional problems. The project will not necessarily consist of a single building, for example many dwellings in either multi- or single-dwelling units may be covered by one permit. The permit will also not necessarily be related to



the placing of a contract with a single enterprise, and more than one contractor may work on one site at the same time, not only as subcontractors but also independently. The development will, in most cases, be spread over time with different buildings being developed in succession.

38. Data about this statistical unit - the project (site) - might be sought from different reporting units. The reporting unit can be the administrative unit handling the permits (municipalities, district offices, etc.). Or it can be the contractors or authorities who are to be employed on the development as main contractors, and regular returns could be obtained from them throughout the period that they continue to hold contracts. A third possibility is that the site itself is regarded as the reporting unit. In this case it is usually necessary to use enumerators because of the difficulty in gathering the data by mail and of course sampling technique would have to be used.

39. The advantages and disadvantages of using the individual projects (site, permit) as the statistical unit are obvious. The data collected for the individual projects readily permit geographical analysis of the location and of the type of work. Also it tends to be simpler to collect some data on a project basis rather than on an enterprise basis, since the latter are likely to cover work on a number of projects being carried out at the same time. The major advantage of the use of the individual projects is that, in principle, it makes it possible to cover the whole of construction activity as it is defined in the diagram in para. 12.

40. There are, however, serious limitations to the data that might be collected by using the individual project (site, permit) as the statistical unit. If the permits are used for identifying as well as defining the statistical unit, the coverage will be restricted as the permit system is restricted (e.g. excluding repair and maintenance and civil engineering etc.) in some countries. In addition,

as the administrative machine is usually relied upon, the data obtained will normally be confined to the total value of the project, perhaps some analysis of its type and purpose and information in physical terms about the building. In some countries information on the date of starting and completing the project or parts of the project may enable the value of work put in place during a particular period to be estimated. If the contractor or the authority undertaking the work is used as the reporting unit it should be possible to ascertain the value of work put in place and the number of men employed on the site (but not the number of men off the site, since these will be difficult to allocate unless the builder has only one project on hand). However main contractors would need to include information on the subcontractors, who would not be identified on the permit, in respect of work done, labour employed, etc. In addition to the difficulties of this procedure in a purely practical sense, the legal authority for collecting information on one enterprise from another does not exist in every country.

41. If a housing or building census is taken then the statistical unit may be the building which, as mentioned above, will often be the same as the site unit. Moreover it may be possible to obtain from this kind of census some indication of the houses built by individuals for themselves; information which is very difficult to obtain by other means. Most countries are taking housing censuses every ten years (usually connected with the population census) in which they enumerate all the existing buildings (or at least those which are for housing purposes) and this information provides useful benchmark data.

(e) The establishment and the local unit

42. The industrial establishment is, ideally, an economic unit which engages, under a single ownership or control, in one or predominantly one kind of industrial activity at a single location - e.g., the individual mine, well, workshop, factory, generating station or household. The local unit comprises all the industrial activities carried on under a single ownership or control at a single location;

it differs from the establishment in that nothing is said about the range of those activities. The distinction made between these units and the enterprise (smallest legal entity) is of interest where the legal entity engages in more than a single class of industrial activity and/or carries on its activities at more than one location. The way in which such multi-unit legal entity may be sub-divided into establishments or local units will depend, in practice, on the manner in which the legal entity organizes and keeps records which can provide the data required.

43. As was already stated, in view of the customary movement of labour, equipment etc. from one construction site to another, no restriction should be put on the location of the statistical unit. From this it follows that the establishment or local unit is not suitable as a statistical unit for the construction statistics. Despite this however, it is necessary to deal with these units because of the treatment of some secondary activities of the construction enterprises. As mentioned in para. 31, some enterprises carry out secondary activities such as the fabrication of joinery or of steel sections or of prefabricated units or the quarrying of minerals, etc. These activities might be for own use but it sometimes happens that part of this product is for sale. In case these activities are carried out continuously at a fixed location, then this secondary unit is usually treated as an industrial establishment classified and enumerated in the appropriate group of the mining or manufacturing industries. In these cases when gathering data from the construction units care should be taken to avoid double counting, therefore these secondary units should be excluded as already mentioned in para. 33.

44. In practice it is often impossible to collect data from these non-construction secondary production units separately. For example, if the unit is small, as it often is, then the men employed in these secondary units will sometimes be employed in construction activities also. In addition much of the

expenditure of the enterprise on fixed assets and stocks will be hard to break down, for example, transport vehicles will be used to move goods for sale as well as to construction sites. In some countries these secondary units are treated as separate units only if, in addition to their products being used by the main unit, these products are also sold to other enterprises.

45. To sum up, these secondary units might be dealt with separately and classified to other sectors, a) if they are at a fixed location; and b) if they have separate records. If these units are treated separately, then in order to avoid double counting, the unit to be enumerated for the construction industry will not be the whole enterprise, but, as already noted, the enterprise minus the other industrial unit(s), that is, the kind-of-activity unit.

46. Ancillary units, for example central administrative offices, warehouses, transportation units, should usually be treated as part of the construction unit. Thus they are classified as part of the construction industry.

(f) Conclusion

47. Finally, based on the above discussion it is possible to propose statistical units for the different scopes outlined in the table in para. 18.

51. The second table - Table B - contains the recommended items of data when the scope is for own-account construction, carried out by independent units, of establishments or other organizations not classified to the construction industry proper. The statistical unit recommended is the kind-of-activity unit. The number of items of data to be gathered is smaller than in Table A. The items of data to be gathered should be also published after tabulation with the proposed classification. The classification of the data should be according to kind of activity, meaning in this case the ISIC major groups (two-digit) of the parent establishment of the kind-of-activity unit carrying out the own-account construction work. Thus the classification will show how much own-account construction was carried out in the different industries. For the collection of statistics from these units recommendations are given for basic (infrequent/comprehensive) and for annual inquiries. No recommendation is made for gathering data from these units more frequently than annual. The coverage recommended in the comprehensive and annual inquiries is all units. This is because these independent units for own-account construction are usually large ones.

52. The third table - Table C - contains recommendations for the own-account construction carried out by establishments or other organizations not classified to the construction industry, with no independent unit. The statistical unit is the establishment (e.g. the manufacturing or mining establishment) which carries out construction on its own account without having an independent construction unit. The data would be gathered from the establishment, as a separate item, on their regular return for their main activity. The number of items of data is restricted to a few to be gathered infrequently and annually. The coverage refers to "selected units". In the case of infrequent inquiries the selected units are those which are covered by economic (or similar censuses). For annual statistics the selected units are those which are covered by the different

annual inquiries. In both cases there might be supplementary surveys (usually sample surveys) covering omitted important industries. Here again the classification would be according to kind of activity meaning the ISIC major groups (2-digit) of the establishment undertaking the own-account construction. Thus the classification will show how much own-account construction is carried out in each industry.

53. The fourth table - Table D - contains recommendations for when the scope is the whole construction activity, the statistical unit being the individual project (site, permit). No recommendations are given for basic (infrequent) inquiries, but attention should be drawn to the international recommendations on Housing Censuses (General Principles for a Housing Census, Series M, No. 28). Those recommendations already include many questions (the year in which the house was completed being one) which might be useful for the enumeration of those residential buildings and houses which are not usually covered by other inquiries. In many countries a particular omission is those dwellings which were mainly built by individuals for themselves. Therefore in some countries it might be feasible to include in the housing census a question as to whether the dwelling was built mainly by private individuals or households rather than by a construction enterprise. It may be that this question can be answered accurately only if the original occupiers remain in the dwelling, in which case this must be taken into account.

54. Table D contains recommendations for annual and more frequent inquiries, for the items of data to be gathered and published and also for the classifications to be used. The proposed coverage is "units which are covered by administrative arrangement". This can mean permits which are given out before the building activity is started, or permits of occupancy which will report on the buildings completed or some other administrative arrangement. If no suitable administrative arrangements are available to cover the projects under construction at the end of

the period and/or for works completed, sample surveys might be used in which case the coverage might be extended to all sites. No restriction is put on the reporting unit which might be the municipality, village and district authorities or government organizations, or in some cases even enterprises. Three different sets of statistics are proposed in this table. The first (A) relates to the projects for which permits were issued during the inquiry period and for these a quarterly or monthly inquiry is thought appropriate. The second (B) relates to the projects which are under construction at the end of the period and for these an annual inquiry is proposed. Finally, the third (C) relates to the projects completed during the inquiry period and the inquiry proposed is a quarterly or monthly one.

55. There are several major advantages in having data using the individual project as the statistical unit. The first is that the scope and coverage will not depend on the kind of builder (construction enterprise, own-account construction, construction by individuals, etc.); the second is that the projects can be classified by type (dwellings, industrial, commercial, etc. buildings, roads, railways, etc.) and by location. It is proposed that the data gathered should be classified by type of activity and by location.

56. Another advantage of the enumeration of the individual project is that it is possible to enumerate the projects completed in physical units. The floor area, in square metres, the volume in cubic metres, and similar measures might be interesting for national and international purposes.

57. To enable the users of the published statistics to evaluate their comparability - both with the statistics from other surveys in the same country and with the statistics of other countries - and to assess their reliability, the following information should be published together with the data.

- i. A description of the scope of the inquiry (i.e. which activities are omitted that belong to the construction industry according to the ISIC, and which are added that are not included in the Construction division of the ISIC) and definitions of the various statistical units in terms of which the field of inquiry was defined and the items of data were gathered.
  - ii. A description of the coverage of the survey (i.e. whether, for example, all construction enterprises were included or only large ones, and in the latter case, the definitions of the large ones should also be given. Or, in case the statistical unit is the permit then any restriction on the coverage (for example, towns only) should be indicated.
  - iii. A description of the methods of covering the field of inquiry - whether by direct collection or whether administrative reports were used. The method of collection should be described. If sampling was used then a description of the sample design used and estimates of probable sample errors should be published.
  - iv. The definitions used for gathering of the items of data might be published perhaps in the form of copies of the questionnaires and the basic instructions used.
  - v. The extent and treatment of any non-response including:
    - a.) The number and the importance of known units failing to respond to the questionnaire, and also whether estimates for these non-respondents have been included in the published data.
    - b.) The extent of the non-response to particular questions for which no estimates have been or could be made.
  - vi. Description of the prices which were used for the values enumerated.
58. Special care should be taken to ensure the comparability of data in time in order that valid time series can be established. It is therefore necessary to take adequate steps to ensure comparability in cases where changes occur in:
- i. classification;
  - ii. scope and coverage;
  - iii. standards or methods used.

Of course all the changes that might occur to affect the question of comparability are not mentioned here. For example, a change in the number of working days, changes in prices, etc. If significant changes occur in



classification, or coverage, or in standards used, then comparability should be ensured by arranging for the items of data in question to be published for one period by both methods. And in the case of time series, the chain index method may be applied.

DATA TO BE GATHERED AND PUBLISHED<sup>1/</sup>: For Countries with Developed Construction Statistics

Table A. Scope. Construction industry proper (Contract construction by general builders, civil engineers and special trade contractors)

Statistical unit. Kind-of-activity unit<sup>2/</sup>

Items of data	Statistics to be gathered in						Statistics to be classified according to kind of activity in <sup>3/</sup>		
	basic inquiries		annual inquiries		monthly or quarterly inquiries		basic inquiries	annual inquiries	monthly or quarterly inquiries
	for all	only for large	for all	only for large	for all	only for large			
1	2	3	4	5	6	7	8	9	10
<b>1. Statistical Unit</b>									
a.) Number of statistical units . . . . .							1	1	
b.) Kind of activity (type of work mainly undertaken) <sup>4/</sup> . . . . .	1		2	1					
c.) Type of ownership* . . . . .	1								
d.) Type of legal organization* . . . . .	1								
<b>2. Employment</b>									
a.) Total number of persons engaged during a single period <sup>5/</sup> of the inquiry period . . . . . distinguishing:	1		2	1			1	1	
(i) Number of working proprietors . . . . .	1						1		
(ii) Number of unpaid family workers . . . . .	1						1		
(iii) Number of employees . . . . . distinguishing:	1			1		1	1	1	1
1) Operatives . . . . .	1			1		2	1	1	2
2) Other employees . . . . .	1			1		2	1	1	2
b.) Number of employees engaged during several periods of the inquiry period* . . . . . distinguishing	1			1			1	1	
(i) Operatives* . . . . .	1			1			1	1	
(ii) Other employees* . . . . .	1			1			1	1	
c.) Number of man-hours worked by operatives . . . . .		1		1		2	1	1	2
d.) Average number of employees engaged during the inquiry period . . . . . distinguishing.							1	1	
(i) Operatives . . . . .							1	1	
(ii) Other employees . . . . .							1	1	
e.) Average number of persons engaged <sup>6/</sup> during the inquiry period . . . . .							1	1	
<b>3. Compensation of Employees</b>									
a.) Wages and salaries paid to employees during the inquiry period . . . . . distinguishing payments to:	1		2	1		2	1	1	2
(i) Operatives . . . . .	1		2	1		2	1	1	2
(ii) Other employees . . . . .	1		2	1		2	1	1	2
b.) Employers' contributions to social security schemes, to pension and similar schemes in respect of their employees. . . . .	2	1		1			1	1	
<b>4. Fixed Assets</b>									
a.) Total cost of new fixed assets acquired from others or produced on own account during the inquiry period . . . . . distinguishing.		1		1			1	1	
(i) Machinery and other equipment (excluding transport equipment) . . . . .		1		1			1	1	
(ii) Transport equipment . . . . .		1		1			1	1	
(iii) Building, improvement to land and other construction work . . . . .		1		1			1	1	

DATA TO BE GATHERED AND PUBLISHED<sup>1/</sup>: For Countries with Developed Construction Statistics

Table A.

Scope. Construction industry proper (Contract construction by general builders, civil engineers and special trade contractors)

Statistical unit: Kind-of-activity unit<sup>2/</sup>

Items of data	Statistics to be gathered in						Statistics to be classified according to kind of activity in <sup>3/</sup>		
	basic inquiries		annual inquiries		monthly or quarterly inquiries		basic inquiries	annual inquiries	monthly or quarterly inquiries
	for all	only for large	for all	only for large	for all	only for large			
statistical units									
1	2	3	4	5	6	7	8	9	10
b.) Total cost of used fixed assets acquired during the inquiry period* . . . . . distinguishing:		1		1			1	1	
(i) Machinery and other equipment* (excluding transport equipment) . . . . .		1		1			1	1	
(ii) Transport equipment* . . . . .		1		1			1	1	
(iii) Building and other construction work* . . . . .		1		1			1	1	
(iv) Land* . . . . .		1		1			1	1	
c.) Total value of sales during the inquiry period* of fixed assets used by the statistical unit . . . . . distinguishing:		1		1			1	1	
(i) Machinery and other equipment* (excluding transport equipment) . . . . .		1		1			1	1	
(ii) Transport equipment* . . . . .		1		1			1	1	
(iii) Building and other construction work* . . . . .		1		1			1	1	
(iv) Land * . . . . .		1		1			1	1	
d.) Gross additions to fixed assets during the inquiry period . . . . . distinguishing:							1	1	
(i) Machinery and other equipment* (excluding transport equipment) . . . . .							1	1	
(ii) Transport equipment . . . . .							1	1	
(iii) Building, improvement to land and other construction work . . . . .							1	1	
(iv) Land . . . . .							1	1	
5. <u>Number and Capacity of Most Important Items of Machines and Equipment at a Single Date of the Inquiry Period</u> . . . . .		1		2			1	2	
6. <u>Cost of Goods Purchased or Consumed and Payments for Services Rendered During the Inquiry Period</u> . . . . . of which:	1			1			1	1	
a.) Cost of raw materials, fuels, supplies and components, etc. . . . .	1			1			1	1	
(i) Quantity and cost of individually important materials . . . . .	2	1		1					
b.) Cost of goods to be sold in the same condition as purchased . . . . .	1								
c.) Cost of repairs and maintenance carried out by others to the construction unit's own assets . . . . .	2	1							
d.) Cost of hiring plant and equipment . . . . .	1			2			1	2	
7. <u>Cost of Non-Industrial Services Rendered by Others During the Inquiry Period</u> <sup>7/</sup> . . . . .		2		2			2	2	
8. <u>Payments to Sub-contractors for Work Done</u> . . . . .	1			1		2	1	1	2
9. <u>Value of Stocks of Raw Material, Fuel and Components etc. at the Beginning and End of Inquiry Period</u> . . . . .	2	1	2	1			1	1	

DATA TO BE GATHERED AND PUBLISHED<sup>1/</sup>: For Countries with Developed Construction Statistics

TABLE A.

Scope. Construction industry proper (Contract construction by general builders, civil engineers and special trade contractors)

Statistical unit. Kind-of-activity unit<sup>2/</sup>

Items of data	Statistics to be gathered in						Statistics to be classified according to kind of activity in <sup>3/</sup>		
	basic inquiries		annual inquiries		monthly or quarterly inquiries		basic inquiries	annual inquiries	monthly or quarterly inquiries
	for all	only for large	for all	only for large	for all	only for large			
1	2	3	4	5	6	7	8	9	10
10. Output									
a.) Works where the unit is main contractor <sup>8/</sup> and on own account									
(i) Total value of works completed during the inquiry period <sup>9/</sup> . . . . . distinguishing	1			1		2	1	1	2
(a) New residential buildings . . . . .	1			1			1	1	
(b) New non-residential buildings . . . . .	1			1			1	1	
(c) New civil engineering works . . . . .	1			1			1	1	
(d) Repair and maintenance. . . . . distinguishing:	1			1			1	1	
1) Capital repair . . . . . distinguishing work done on	1			1			1	1	
aa) Residential buildings . . . . .	2			2			2	2	
bb) Non-residential buildings. . . . .	2			2			2	2	
cc) Civil engineering works . . . . .	2			2			2	2	
2) Current repair and maintenance . . . . . distinguishing work done on	1			1			1	1	
aa) Residential buildings . . . . .	2			2			2	2	
bb) Non-residential buildings. . . . .	2			2			2	2	
cc) Civil engineering works . . . . .	2			2			2	2	
(ii) Value of work carried out on projects which were under construction at the beginning of the inquiry period <sup>10/</sup> . . . . . distinguishing	1			1		2	1	1	2
(a) New residential buildings . . . . .	1			1			1	1	
(b) New non-residential buildings. . . . .	1			1			1	1	
(c) New civil engineering works . . . . .	1			1			1	1	
(d) Repair and maintenance . . . . . distinguishing	1			1			1	1	
1) Capital repair . . . . . distinguishing work done on	1			1			1	1	
aa) Residential buildings . . . . .	2			2			2	2	
bb) Non-residential buildings . . . . .	2			2			2	2	
cc) Civil engineering works . . . . .	2			2			2	2	
(iii) Value of work carried out on projects which were under construction at the end of the inquiry period distinguishing	1			1		2	1	1	2
(a) New residential buildings. . . . .	1			1			1	1	
(b) New non-residential buildings . . . . .	1			1			1	1	
(c) New civil engineering works. . . . .	1			1			1	1	
(d) Repair and maintenance . . . . . distinguishing	1			1			1	1	
1) Capital repair . . . . . distinguishing work done on	1			1			1	1	
aa) Residential buildings . . . . .	2			2			2	2	
bb) Non-residential buildings . . . . .	2			2			2	2	
cc) Civil engineering works . . . . .	2			2			2	2	

DATA TO BE GATHERED AND PUBLISHED<sup>1/</sup>: For Countries with Developed Construction Statistics

Table A. Scope: Construction industry proper (contract construction by general builders, civil engineers and special trade contractors)

Statistical Unit: Kind-of-activity unit<sup>2/</sup>

Items of data		Statistics to be gathered in						Statistics to be classified according to kind of activity in <sup>3/</sup>		
		basic inquiries		annual inquiries		monthly or quarterly inquiries		basic inquiries	annual inquiries	monthly or quarterly inquiries
		for all	only for large	for all	only for large	for all	only for large			
1		2	3	4	5	6	7	8	9	10
10. (cont'd)	2) Current repair and maintenance . . . . . distinguishing work done on:				1			1	1	
	aa) Residential buildings . . . . .				2			2	2	
	bb) Non-residential buildings . . . . .				2			2	2	
	cc) Civil engineering works . . . . .				2			2	2	
	(iv) Value of work done ((i)+(iii)-(ii)) <sup>12/</sup> . . . . . distinguishing:			1			1	1	1	
	(a) New residential buildings . . . . .			1			1	1		
	(b) New non-residential buildings . . . . .			1			1	1		
	(c) New civil engineering works . . . . .			1			1	1		
	(d) Repair and maintenance . . . . . distinguishing:			1			1	1		
	1) Capital repair . . . . . distinguishing work done on:			1			1	1		
	aa) Residential buildings . . . . .			2			2	2		
	bb) Non-residential buildings . . . . .			2			2	2		
	cc) Civil engineering works . . . . .			2			2	2		
	2) Current repair and maintenance . . . . . distinguishing work done on:			1			1	1		
	aa) Residential buildings . . . . .			2			2	2		
	bb) Non-residential buildings . . . . .			2			2	2		
	cc) Civil engineering works . . . . .			2			2	2		
	b.) Value of work done as a subcontractor . . . . .			1			1	1	1	1
	c.) Value of construction work carried out by the unit's own labour force during the inquiry period (10.(a.)(iv) - 8. + 10.(b.) . . . . .							1	1	
	d.) Value of sales of products from industrial units <sup>13/</sup> . . . . .				1			1	1	
	e.) Value of goods sold in the same condition as purchased . . . . .				1			1	1	
11. Value Added . . . . .								1	1	
12. Tender Value of Projects Under Construction at the End of the Inquiry Period <sup>14/</sup> . . . . . distinguishing:					1				1	
	a.) New residential buildings . . . . .				1				1	
	b.) New non-residential buildings . . . . .				1				1	
	c.) New civil engineering works . . . . .				1				1	
13. Value of Contracts and Orders Acquired during the Inquiry Period . . . . .							2		2	

FOOTNOTES TO TABLE A

- 1/ For international purposes all the data for the items to be gathered, except those marked with an asterisk, should also be published. In the case of those items of data to be classified (as shown under columns 8 to 10) they should be published according to the classifications suggested. Some derived items of data such as numbers 2.(d.), (e.), 10.(c.) and 11, are also included in the list and these are marked only under the "to be classified" columns (i.e. 8 to 10).
- 2/ Kind-of-activity unit means the part of the construction enterprise which carries out construction work and activities ancillary to the construction work. In most cases this means the construction enterprise itself but when the construction enterprise includes an establishment(s) (i.e. a unit with separate records) carrying on a secondary industrial activity then the kind-of-activity unit will be the construction enterprise minus this (these) establishment(s). Enterprise here means the construction enterprise or similar units (permanent offices, developers of residential projects, etc.) where full records about the activity are available.
- 3/ The number of units and the total number of persons engaged are also recommended for classification according to type of ownership, legal organization and size (i.e. in addition to classification by kind of activity).
- 4/ Kind of activity: The minimum classification recommended is according to (i) contract construction by general builders etc., and (ii) contract construction by special trade contractors. National classification systems may indicate further possible groupings.
- 5/ As far as possible the period of peak activity should be selected.
- 6/ Defined as the sum of "average number of employees" plus the number of "working proprietors" and "unpaid family members" during a single period.
- 7/ The items to be gathered are payments for rent, interest, insurance, publicity and advertising, professional services and communication expenses. In some cases, because of the statistical unit used, it may be possible to gather data on selected expenses only.
- 8/ Works carried out on the basis of contracts with investors and on the account of the construction unit itself.
- 9/ "Works completed" may mean either the completion of the whole project or the completion of whole buildings etc. (which only form part of the project) which were delivered to the control of the purchaser and ready for use.
- 10/ This refers to the value of the work carried out up to the beginning of the inquiry period.
- 11/ This refers to the value of the work carried out up to the end of the inquiry period.

- 12/ This may be enumerated directly and not as (i)+(iii)-(ii) but then the information on the stock of unfinished projects would be lost.
- 13/ This item is relevant only in the case where this industrial unit was not included in the census of industry (manufacturing, etc.).
- 14/ Excludes repair and maintenance.
- \* Indicates that data for this item need not be published for international purposes.

DATA TO BE GATHERED AND PUBLISHED<sup>1/</sup>

**Table B.** Scope: Own-account construction, carried out by independent units, of establishments or other organizations not classified to the construction industry proper.  
 Statistical unit. Kind-of-activity unit. Coverage All units

Items of data  1	Statistics to be gathered in	Statistics to be classified according to kind of activity in <sup>2/</sup>
	basic and annual inquiries	basic and annual inquiries
	2	3
<b>1. Statistical Unit</b>		
a.) Number of statistical units . . . . .		1
b.) Kind of activity of the parent unit of the statistical unit* . . . . .	1	
<b>2. Employment</b>		
a.) Total number of employees engaged during several periods of the inquiry period* . . . . . distinguishing:	1	1
(i) Operatives* . . . . .	1	1
(ii) Other employees* . . . . .	1	1
b.) Number of man-hours worked by operatives . . . . .	2	2
c.) Average number of employees engaged during the inquiry period. . . distinguishing:		1
(i) Operatives . . . . .		1
(ii) Other employees . . . . .		1
<b>3. Wages and Salaries Paid to Employees During the Inquiry Period . . . . . distinguishing payments to:</b>	1	1
a.) Operatives . . . . .	1	1
b.) Other employees . . . . .	1	1
<b>4. Value of Stocks of Raw Material, Fuel and Components etc. at the Beginning and End of the Inquiry Period . . . . .</b>	1	1
<b>5. Cost of Goods Purchased or Consumed and Payments for Services Rendered During the Inquiry Period . . . . .</b>	1	1
<b>6. Output</b>		
Value of construction work carried out on own account during the inquiry period . . . . . distinguishing:	1	1
(i) New residential buildings . . . . .	1	2
(ii) New non-residential buildings . . . . .	1	2
(iii) New civil engineering works . . . . .	1	2
(iv) Repair and maintenance. . . . . distinguishing:	1	2
1) Capital repair . . . . . distinguishing work done on:	2	2
aa) Residential buildings . . . . .	2	2
bb) Non-residential buildings . . . . .	2	2
cc) Civil engineering works . . . . .	2	2
2) Current repair and maintenance . . . . . distinguishing work done on:	2	2
aa) Residential buildings . . . . .	2	2
bb) Non-residential buildings . . . . .	2	2
cc) Civil engineering works . . . . .	2	2
<b>7. Value Added . . . . .</b>		1

<sup>1/</sup> For international purposes all the data for the items to be gathered, except those marked with an asterisk, should also be published. The data should be published according to the classification suggested.

<sup>2/</sup> Kind of activity refers here to the ISIC major groups (2-digit) of the establishment which is the parent organization of the kind-of-activity unit (independent) carrying out the own-account construction work. Thus the classification will show how much own-account construction was carried out in the different industries.

\* Indicates that data for this item need not be published for international purposes.



DATA TO BE GATHERED AND PUBLISHED

Table C. Scope. Own-account construction carried out by establishments or other organizations not classified to the construction industry, with no independent construction unit.

Items of data	Coverage		Selected units 2/	
	Statistical unit Establishment 1/		Statistics to be classified according to kind of activity in 4/	
	Statistics to be gathered in 3/		basic inquiries	annual inquiries
1	2	3	4	5
1. <u>Statistical Unit</u>				
e.) Kind of activity of the establishment* . . . . .	1	1		
b.) Number of statistical units . . . . .			1	1
2. <u>Output</u>				
Value of construction work <sup>5/</sup> carried out during the inquiry period. . . . .	1	1	1	1
distinguishing:				
(i) New residential buildings . . . . .	1	2	1	2
(ii) New non-residential buildings . . . . .	1	2	1	2
(iii) New civil engineering works . . . . .	1	2	1	2
(iv) Capital repairs <sup>5/</sup> . . . . .	1	2	1	2

- 1/ The statistical unit is the establishment (e.g. the manufacturing or mining establishment) which carries out own-account construction without having an independent construction unit.
- 2/ In the case of infrequent inquiries the selected units are those which are covered by economic (or similar) censuses. For annual statistics the selected units are those which are covered by the different annual inquiries. In both cases there might be supplementary surveys (usually sample surveys) covering omitted important industries.
- 3/ The data would be gathered from the parent establishment as a separate item, on their regular return for their main activity (e.g. in the case of a manufacturing establishment on their return for the manufacturing survey).
- 4/ The kind of activity refers to the ISIC major groups (2-digit) of the establishment. Thus the classification will show how much own-account construction is carried out in each industry.
- 5/ Current repair and maintenance is excluded from the scope.

DATA TO BE GATHERED AND PUBLISHED<sup>1/</sup>

Table D. Scope The whole of construction activity\*  
Statistical unit Project (site, permit)

Items of data	Statistics to be gathered for units covered by administrative arrangements in <sup>2/</sup>		Statistics to be classified according to <sup>3/</sup>			
	annual inquiries	more frequent inquiries	type of project		type of project and location	
			annual inquiries	more frequent inquiries	annual inquiries	more frequent inquiries
1	2	3	4	5	6	7
<b>A. <u>Projects for which permits were issued during the inquiry period</u> <sup>4/</sup></b>						
1. Characteristics of the project						
a.) Number of projects . . . . .				1		2
b.) Type of project <sup>5/</sup> . . . . .		1				
c.) Location of project . . . . .		1				
d.) Type of builder <sup>3/</sup> . . . . .		2				
2. Total tender value of project . . . . .		1		1		2
<b>B. <u>Projects under construction at the end of the period</u></b>						
1. Characteristics of the projects						
a.) Number of projects . . . . .			1		1	
b.) Type of project <sup>5/</sup> . . . . .	1					
c.) Location of project . . . . .	1					
d.) Type of builder <sup>3/</sup> . . . . .	2					
2. Total tender value of project . . . . .	1		1		1	
3. Total value of work done on the project up to the end of the inquiry period . . . . .	1		1		1	
<b>C. <u>Projects completed during the inquiry period</u></b>						
1. Characteristics of the projects						
a.) Number of projects . . . . .				1		1
b.) Type of project <sup>5/</sup> . . . . .		1				
c.) Location of project . . . . .		1				
d.) Type of builder <sup>3/</sup> . . . . .		2				
2. Value and quantity of the project completed						
a.) Total value . . . . .		1		1		2
b.) Quantity measures of the project <sup>6/</sup> . . . . .		1		1		2

<sup>1/</sup> All data should be published as classified (under columns 4-7).  
<sup>2/</sup> In the absence of administrative arrangements, in the case of items B. and C., sample surveys might be used.  
<sup>3/</sup> Those projects which were carried out by individuals for own use (e.g. people building houses for themselves) might be classified separately in countries where this practice is significant. In such countries it would therefore be necessary to ask the type of builder (construction unit, other unit, individual owner builder etc.). Items B. 3 and C. 2. (a.) especially should be classified according to this criteria.  
<sup>4/</sup> If data on construction work begun are available from other sources, then these can be given instead of data based on permits.  
<sup>5/</sup> As detailed as necessary for national purposes, but at least according to the following: New residential building, Other new building, New civil engineering work.  
<sup>6/</sup> Floor area in square metres or volume in cubic metres etc.  
\* Repair and maintenance are usually excluded.

CHAPTER III

DEFINITIONS OF THE ITEMS OF DATA TO BE GATHERED AND PUBLISHED

(The order of dealing with the items of data follows the order of items in each Table.)

TABLE A. Scope: Construction industry proper

Statistical Unit: Kind-of-activity unit<sup>1/</sup>

Statistical Unit

a.) Number of statistical units

59. The distribution of the statistical units according to kind of activity and size provides an indication of the structure of the construction industry. The most interesting and meaningful figure is the number of units in business on a particular day (preferably a day during the peak period of activity) within the field of coverage of the survey.

b.) Kind of activity (type of work mainly undertaken)

60. The intention is to classify the statistical units according to the main type of work or trade which they undertake. In view of differences in national requirements and differences in the structure and organization of the construction industry between countries, it is not possible to recommend detailed kind-of-activity categories to be used. It would be desirable however to distinguish at least the following:

- (i) General builders - to include units whose main activity is to carry out, or organize and partly carry out, or repair, building projects;
- (ii) Civil engineers - to include units whose main activity is to carry out, or organize and partly carry out, or repair, civil engineering projects;
- (iii) Special trade contractors (plumbers, electricians, painters, bricklayers, or block layers and masons, plasterers, etc.).

In some countries it might be necessary to combine groups (i) and (ii) because a large number of units undertake both activities. An alternative solution might be to establish a fourth group for those which undertake

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<sup>1/</sup> See Chapter I for a discussion of this.

both activities (Builders and Civil engineers). In other countries it might be necessary and feasible to have a more detailed breakdown for the special trade contractors.

c.) Size of statistical unit

61. The size of the statistical unit should be defined in terms of the "average number of persons engaged during the inquiry period". In the absence of this data the "total number of persons engaged during a single period" might be used. In classifying the statistical units according to persons engaged, at least 5, 10, 20, 50, 100, 200, 500, and 1 000 should be utilized as lower class limits. The size criterion based on employment is recommended for the classification of the statistical units because of its universal applicability and usefulness. It is recognized however, that other criteria of size (value added, value of work done, etc.) may also be of value for classifying the statistical unit for particular purposes. It may also be desirable to provide supplementary size classifications according to employment at a period of peak activity during the inquiry year, because of the highly seasonal character of the construction industry.

d.) Type of ownership

62. The statistical units might be classified into the following groups according to type of ownership:

- (i) publicly owned:
  - by central government;
  - by local government;
- (ii) privately owned
- (iii) joint ownership (public and private)
- (iv) co-operative ownership

In some countries co-operative ownership is regarded as just another form of private ownership; therefore (ii) and (iv) might be combined for this characteristic but classified separately under the type of legal

organization. In other countries, according to their laws, co-operative ownership is regarded as something different from private ownership and therefore (ii) and (iv) are classified separately.

e.) Type of legal organization

63. This refers to the legal form of the smallest legal entity which owns the statistical unit. In most cases the statistical unit is the enterprise: then the legal form relates to the enterprise. In some other cases the statistical unit is the kind-of-activity unit of the construction enterprise; in these cases the legal form relates to the construction enterprise which owns the kind-of-activity unit. It is obvious that the categories of the classification of statistical units by type of legal form must necessarily depend on the legal organization and arrangements in the country concerned and therefore this classification will vary considerably from country to country. In most countries the classification might distinguish:

- (i) Individual proprietorship;
- (ii) Partnership;
- (iii) Limited liability organizations;
- (iv) Others.

Employment

a.) Total number of persons engaged during a single period of the inquiry period

64. The number of persons engaged is defined as the total number of persons who worked in or for the statistical unit, including working proprietors and active business partners, unpaid family workers, members of the co-operative, and employees. All persons engaged by the unit whether on site or off site should be included. However, directors or incorporated enterprises who are paid solely for their attendance at board-of-directors' meetings are excluded. The count should relate to the number of persons engaged during a specific period of time, e.g., a pay period or calendar week rather than on

a specified day. Included are persons on short-term leave such as sick leave, annual leave or paid vacations, persons on strike, and persons who were stood off; excluded are persons on unlimited leave, military leave or on pension.

(i) Number of working proprietors

Included are all owners of the legal entity (individual proprietorship or partnership). Thus all self-employed active partners are included. Silent or inactive partners and members of the proprietors' families are excluded unless they participate in the control and management of the business. (This category is not applicable to any incorporated or similar enterprise, the ownership of which is represented by equity shares.)

(ii) Unpaid family workers

This includes all persons living in the household of any of the proprietors of the legal entity and working in the statistical unit without regular pay (i.e. without an agreed amount to be paid for work done) for at least one-third of the working time usual to that unit. (This category is inapplicable to any incorporated or similar entity.)

b.) Number of employees

65. Included are all persons who do work in the statistical unit for which they receive pay, that is all persons whether working on site of the construction or off the site are included. These latter are persons employed in permanent offices, or workers in off-site workshops (which are part of the statistical unit, see for this the definition of the statistical unit in paras. 28-46) or in other ancillary units. Also included are salaried managers and directors of incorporated enterprises (legal entities) except when paid solely for their attendance at board-of-directors' meetings.

The category "employees" is intended to include all persons engaged, other than working proprietors and unpaid family workers. Members of construction co-operatives might be included as employees or kept in a separate group (see below).

(i) Operatives

Operatives are all employees who are directly engaged in construction work and related activities of the statistical unit, including any testing, inspecting, and working supervisory personnel, whose function is to record or expedite any step in the production process. Examples of operatives are shown below under skilled workers. This category includes workers working in workshops (if they are part of the statistical unit used in the construction inquiry), stores and other ancillary units. It might be important for national purposes to distinguish between skilled and unskilled operatives, perhaps also distinguishing the following categories of skilled operatives:

Carpenters; Bricklayers; Painters; Electricians; Plumbers; Plasterers; Roof tilers; Tunnellers; Welders; Concrete workers; and Bridge builders.

The list might be amended according to the circumstances of the country concerned. Excluded from the operative category are such employees as architects, engineers and other employees with professional qualifications. Excluded also are bookkeepers, typists, office workers, watchmen and salesmen.

(ii) Other employees

All employees other than operatives are included here. Examples are: salaried managers and directors, architects, clerks, typists, bookkeepers, administrative supervisors, etc.

(iii) Members of co-operatives

Members of co-operatives are those who have shares in the co-operatives and usually receive in addition to their regular wages and salaries a share of the profit according to their share in the business. This category is mainly applicable in countries with centrally planned economies. The members of the co-operatives may work either as operatives or as other employees. Therefore, they might be classified to "operatives" or "other employees" accordingly or kept in a separate group.

(iv) Number of employees and operatives engaged during several specified periods of the inquiry year.

Employees and operatives are defined as above. In order to take into account the seasonal character of construction activity, the data should be collected for a time period (a calendar week or a payroll period), preferably in every month, but at least once in each quarter is suggested.

c.) Number of man-hours worked by operatives

66. The total number of hours actually spent by operatives at work, including overtime, waiting time, should be collected. This means that

the time paid for operatives who are stood off on account of weather should be included in man-hours worked. Since it is hours spent at work rather than hours paid for that are wanted, time spent on vacation, casual or sick leave, paid lunch time, etc. should be excluded.

67. In many units a record of the number of man-hours worked is normally kept. In the absence of such records, the man-hour figures may be obtained from payroll records - if these records are complete and payments to operatives are made on an hourly basis - provided appropriate corrections are made for periods of non-attendance. If neither man-hour records nor payroll records are adequate, estimations might be used.

d.) Average number of employees engaged during the inquiry year

68. The average number of employees (operatives and other employees) is computed from the number of employees employed during several specified periods during the year.

e.) Average number of persons engaged during the inquiry year

69. The average number of persons engaged - which serves as the size criterion for the unit - is the sum of "average number of employees" plus the other categories of persons engaged measured as of a single period.

#### Compensation of Employees

a.) Wages and salaries paid during the inquiry period

70. Included are all payments, whether in cash or in kind, made by the employer during the inquiry year in connexion with the work done, to all persons included in the count of employees, as well as to members of co-operatives if they are counted as a part of the number of employees. Included are all cash payments, bonuses, cost-of-living allowances, wages paid during periods of vacation, sick leave, and to persons who were stood off; taxes and social insurance contributions and the like, payable by the employee and deducted by the employer; and payments in kind.



Lay-off payments or compensation for unemployment is included except in those cases where such payments are made from trust or other special funds set up expressly for this purpose - i.e. payments which are not made by the employer.

Excluded are social insurance contributions and the like payable by the employer as well as pension payments, family allowances and similar social benefits.

b.) Employers' contribution to social security schemes, to pension and similar schemes in respect of their employees.

71. Under this item contributions which are financed by the employer should be reported. Excluded are such items as family allowances not financed directly by the employer, travelling and other expenditure incurred for business purposes and reimbursed by the employer.

#### Fixed Assets

a.) Scope of the data

72. The data relating to expenditures should include the value of all physical assets - those expected to have a productive life of more than one year that are intended for use by the statistical unit (buildings, machinery, equipment and vehicles). Included are major additions, alterations and improvements to existing fixed assets that extend their normal economic life or raise their productivity. Also included is the value of fixed assets made by the statistical unit's own labour for its own use and additions and improvements to fixed assets carried out by the unit's own personnel. Titles to wealth and expenditures for repair and maintenance are excluded.

b.) Valuation

73. Fixed assets acquired from others should be valued at the full cost incurred - i.e., at the delivered price plus the cost of installation, including any necessary fees and taxes, but excluding financing costs. Fixed assets produced by the statistical unit for its own use should be valued at the cost of all work put in place and any overhead costs allocable to this work should also be included.

Fixed assets produced by one unit of a multi-unit enterprise for the use of another unit of the same enterprise should be valued by the receiving unit as though purchased from outside the enterprise. Where capital accounts are maintained, the values requested should be those attributed to the fixed assets (excluding financing costs) for posting to these accounts, regardless of the source of those assets. Used fixed assets sold during the inquiry year should be valued at the actual amount realized.

c.) The time at which an expenditure for fixed assets takes place

74. The expenditures required are those for fixed assets during the inquiry year. Where capital accounts are maintained, it is suggested that expenditures for fixed assets posted to these accounts during the inquiry year be requested. The full cost of the fixed asset should be posted to the capital accounts only at the time the asset is completed and delivered to the control of the purchasing enterprise and/or the statistical unit. That is, progress payments made against fixed assets on order should not be posted to the capital accounts and the expenditures reported should relate to the total value of those fixed assets the control of which was acquired during the inquiry year. Uncompleted capital assets (heavy machinery, structures and other forms of construction) should be included in inventories and not in fixed assets. Where the purchaser makes progress payments during the course of the construction of these items, the progress payments would be recorded as his financial claim on (a trade advance to) the producer of the good.

d.) The distinction between new and used fixed assets

75. New fixed assets include all those that have not been previously used in the country. Thus, newly imported fixed assets are considered as new whether or not used before they were imported. Used fixed assets include all those that have been previously used within the country.

e.) The distinction between different types of fixed assets

(i) Machinery and other equipment (excluding transport equipment)

Power generating machinery, office machinery, equipment and furniture, metalworking machinery, mining, construction and other industrial machinery; cranes, fork-lift equipment and the like, durable containers; equipment and instruments used by professional men; and any other machinery and equipment and major renovations and alterations in these types of machinery and equipment.

(ii) Transport equipment

Finished ships, motor vehicles, aircraft, railway and tramway rolling stock, tractors for road haulage, carts and wagons and major alterations and improvements of existing transport equipment.

(iii) Building, improvement to land and other construction work

Finished residential buildings and other buildings, such as factories, warehouses, office buildings, stores, restaurants, etc. Completed new constructions such as permanent ways of railroads or roads, streets, car parking facilities etc. Major alterations and improvements. Excluded is the value of land before improvement. Land improvements are included.

Number and Capacity of Most Important Items of Machines and Equipment

76. The number of important machines and equipment should be given for a single date during the inquiry period (preferably at the peak period). The statistics on the number and capacity of machines and equipment should cover all machines and equipment of the types concerned which are at the disposal of the statistical unit at the given date. All machines should be included whether they are in use on sites, in reserve or under repair. Both machines which are owned by the unit and machines which are rented by the unit should be included. But any machines which are rented out to other units should be excluded.

77. The most important machines are:

- Shovel excavators
- Bulldozers
- Scrapers
- Cranes
- Mixers
- Motor road rollers
- Finishers for concrete roads
- Asphalt mixers
- File drivers
- Bucket excavators

Cost of Goods Purchased or Consumed and Payments for Services Rendered During the Inquiry Period

a.) Purchased (received). (Alternate)

78. Included here are all commodities (excluding fixed assets) delivered to the control of the statistical unit during the inquiry year. The time of purchase or receipt should be related to the definition of inventories in the sense that goods should be considered as received at the time such goods are entered in the inventory account of the statistical unit. Usually materials are regarded as purchased or received either when they arrive in the storage depot of the construction unit or on the construction site. Alternatively, goods may be considered as received when the statistical unit has acquired effective control over (or right to use) the goods in question. In case the statistical unit is the enterprise (i.e. the kind-of-activity unit is the same as the enterprise) this definition coincides with the time of acquisition of title or time of invoicing. The valuation of the commodities received should be at the delivered value (laid-down cost) at the statistical unit - including the purchase price, all transport and other charges and duties, taxes or other levies, and excluding discounts, rebates, etc. allowed to the purchaser. In some cases the construction enterprise may also be involved in secondary production activity (e.g. prefabrication of parts of joinery) which, if separate records are available, will be enumerated as an independent unit and classified to its own activity (i.e. outside the construction industry). The construction unit return must include, in the figure shown for the cost of materials etc. the cost of materials obtained from this secondary, but separately identified, production unit. These materials should in principle be valued at the market price. Of course it follows from this that the construction unit return must exclude from the cost of its materials purchased those materials etc, which are used by the independent secondary production unit.

b.) Consumed (alternate)

79. Includes all those commodities owned by the unit which have entered into the production process of the statistical unit during the reference period.

These should be valued at cost on delivery (purchase price in the market) at the unit consuming the commodities at the moment the commodities enter into production.

This principle of pricing ensures that charges for these expenses will be equivalent to the costs of replacing these commodities at the time these items are consumed.

All the costs involved in delivery to the establishments should be included, e.g. distribution and transport margins and commodity taxes in addition to the price of the commodity at the establishment where it was produced. Where accounting records show this category the book value should be requested.

80. In case the statistical unit is the main contractor on some work, then all material etc. should be reported which is owned by the unit and used on the construction work, disregarding whether this material is used by the unit's own labour or by the labour of a subcontractor. In case the statistical unit is a subcontractor on some construction work, it is necessary to report all the material used which is owned by the unit. However material used by the unit but owned by the main contractor should not be reported by the subcontractor unit.

81. Finally, in some countries it might be that the important part of the material used for construction is being bought by the owner (investor) and given to the construction unit for carrying out the work. If this type of arrangement is important in the country then information for this material should be enumerated from the main contractor but as a separate item - i.e. not included under the general title (i.e. Cost of Goods Purchased or Consumed and Payment for Services Rendered During the Inquiry Period).

82. "Payments for services rendered" by other units to the construction unit excludes the payments to subcontractors for work done by them because this is enumerated separately under item 8 in Table A. (Payments to Subcontractors for Work

Done). This leaves for inclusion in the category "payments for services rendered", services which are rendered by other units such as the cost of repair and maintenance carried out by others to the construction unit's own assets and the cost of hiring plant and equipment. It should also be noted that if this alternative approach is used the points made above, under (a.) Purchased (or received), regarding the material obtained from independent secondary production units are also relevant here.

c.) Cost of raw materials, fuels, supplies and components, etc.

83. Included are raw materials, components, prefabricated elements etc. that are physically incorporated in the construction work. Included also are all auxiliary materials (lubricants, water, materials for repair and maintenance etc.) and office supplies, and also all fuels used by the statistical unit (including gasoline and other fuels for vehicles).

(i) Quantity and cost of individually important materials

The individually important materials in quantity and value should be enumerated. In those cases where a secondary manufacturing activity (prefabrication, making of joinery, etc.) is not carried out in a separate independent unit it may be useful to distinguish between materials which are purchased from outside the unit and those which are made in the unit's own workshop.

d.) Cost of goods sold in the same condition as purchased

84. Included are all those goods which were purchased and resold without any transformation. The same goods should be included as under item 10. e.).

e.) Cost of repairs and maintenance carried out by others to the construction unit's own assets.

85. Here current repairs and maintenance carried out by other units should be included. Excluded are the capital repairs. In principle the distinction is that outlays which make good breakages in fixed assets and keep them in proper working order are current repair and maintenance while outlays which lengthen the expected normal life of use of fixed assets or increase their productivity

substantially are capital repairs.

f.) Cost of hiring plant and equipment

86. The cost of hiring plant and equipment from other construction or non-construction units should be included here. The value actually paid should be stated. Machinery and equipment owned by subcontractors and used by them for executing construction work for the statistical unit on the basis of subcontracts are not considered as hired.

Payments to Subcontractors for Work Done

87. Subcontractors' work is that which is performed by other units on construction projects where the statistical unit is the main contractor. The arrangement in this case is that the unit undertakes the work for the building owner (investor) and the subcontractor works for the unit (the main contractor). Much of the work will be subcontracted to other units classified to the construction industry, but some work may be subcontracted to units in other industries.

Cost of Non-Industrial Services Rendered by Others During the Inquiry Period

88. In principle all payments to other units for services rendered and not included in item 6. of the Table, should be included under this item. The major items involved are payment for rent, interest, insurance, publicity and advertising, professional services and communication expenses. In some cases, because of the statistical unit used, it may be possible to gather data on selected expenses only.

Value of Stocks of Raw Material, Fuel, and Components etc. at the Beginning and End of the Inquiry Year

89. In principle, inventories held by the construction unit consist of goods to which they have legal title (i.e. have purchased) irrespective of whether they are in physical possession of goods. In practice, however, it may be necessary to deviate from this principle of the time of recording additions to inventories. All materials, fuels, components acquired for further processing or to put in place

in the building, including auxiliary materials and office supplies, should be included. Excluded are all materials owned by others, but held by the statistical unit for construction work or further processing.

90. Valuation should be at the delivered (laid down) price of each item for the last transaction made by the unit immediately prior to the reference date, excluding any rebates or discounts given by the seller and including any duties or taxes. The value of work in process (or progress) is excluded.

#### Output

91. Output of construction covers all types of construction activity on both buildings and other structures, namely:

- (i) new construction including extensions;
- (ii) capital repairs including restorations and conversions;
- (iii) current repairs and maintenance carried out for others only (i.e. current repair and maintenance on own account are excluded).

92. The statistics on value of output of construction to be collected should provide information not only on total output of construction but should also reflect the organization of work. The following classifications may serve this purpose:

- (i) Construction work carried out on projects for which the unit is acting as a main contractor (i.e. having a contract with the investor) and on own account. These works include all work carried out for the main contractors whether it is made by the unit's own labour force or by subcontractors to the unit;
- (ii) Construction work carried out on the basis of subcontracts for others;
- (iii) Construction work carried out by the unit's own labour force;
- (iv) Payments to Subcontractors for Work Done is also available (item 8).

93. The statistics of output of construction should also distinguish the following types of construction activity:

- (i) New construction work. This means the erection of an entirely new structure whether or not the site on which it is built was previously occupied. Extensions should also be included here.



(ii) Capital repairs including restorations and conversions. In principle, this category should include construction work by which the utility of buildings or other structures is raised or at least renewed, i.e. which materially extend the normal life of these fixed assets. Restorations and conversions should be included here. Restoration means repairs by which at least one structure is effectively reinstated and where the substantial parts of the existing structure are used. Conversion relates to structural changes carried out within a building.

(iii) Current repair and maintenance. This includes construction work on buildings and other structures which does not, in principle, result in extending their normal life but only prevents their abnormal deterioration and keeps them in a state of normal functioning.

94. In addition, it is recommended that each of the groups mentioned in paragraph 93 should be sub-divided into work done on:

- (i) Residential buildings;
- (ii) Non-residential buildings;
- (iii) Civil engineering work.

95. Building: A building is an independent structure comprising one or more rooms or other spaces, covered by a roof, enclosed with external walls or dividing walls which extend from the foundation to the roof and intended for residential, agricultural, industrial, commercial, cultural, etc. purposes. Residential and Non-Residential Buildings: A building should be regarded as residential when the major part of the building (i.e. more than half of its gross floor area) is built for dwelling purposes. Other buildings should be regarded as non-residential. Civil Engineering Work: All construction work other than building.

a.) Works where the unit is main contractor and on own account

96. This includes all construction activity which is carried out by the statistical unit for the owner (investor) of the project. Own-account construction of the unit (whether for use as own fixed capital assets or for sale) are also included. Excluded is all work done by the unit as a subcontractor. All amounts billed to the investor during the period should generally be included. The main contractor must also include the value of work done by his subcontractors. The

own-account construction of the statistical unit includes those building and construction projects which the statistical unit will itself use as fixed assets and also those which are produced for sale or lease after the project is finished.

(1) Works completed during the inquiry period

Generally works can be regarded as completed when the work is delivered to the control of the purchaser and final payment has been billed. The value relates to all work done on this project without regard to the period when the work was done (i.e. from the beginning of construction work until the completion of the project).

(11) and (111) Value of work carried out on projects which were under construction at the beginning and end of the inquiry period

This should include all the works started but not completed. The value of work done on unfinished projects might be estimated with the help of progress payments or alternatively may be estimated from the value of materials put in place, together with labour cost and other expenses, but in this case allowance should be made for operating surplus. The value relates to all work done without regard to the period when the work was done (i.e. from the beginning of the construction work either until the beginning or until the end of the inquiry period).

(14) Value of work done

This aggregate may be derived from items 10.(1), 10.(11), 10.(111) in Table A as equal to  $(1)+(11)-(111)$ . In the absence of these aggregates the value of work done during the inquiry period might be enumerated directly using the method mentioned above under (11) and (111). The value relates to the work during the inquiry period i.e. the value which was built in before the inquiry period should be excluded.

b.) Value of work done as a subcontractor

97. This should include the amounts, if any, which the statistical unit has

billed to main contractors during the period. Of course this item will not apply to those units which work only as main contractors.

c.) Value of work carried out by the unit's own labour force during the inquiry period.

98. This aggregate may be derived as the value of work done on projects where the unit is main contractor - including work done on own account -

(item 10.a.) (14)) plus the value of work done by the unit as a subcontractor

(item 10.b.) minus the payments to subcontractors for work done (item 8).

d.) Value of sales of products from industrial units

99. This item is relevant only in the case where these industrial units were not included in the census of industry (manufacturing etc.) as a separate establishment.

e.) Value of goods sold in the same condition as purchased

100. The sales value, ex-statistical unit, of all goods shipped during the reference year in the same condition as received.

Value Added

101. Value added may be calculated in two different ways. In the first approach value added is derived from the value of work done by the unit as a main contractor - including work done for own account - (item 10.a.) (iv) plus the value of work done as a subcontractor (item 10.b.)), plus the value of sales of products from industrial units (item 10.d.)) plus the value of goods sold in the same condition as purchased (item 10.e.)) minus the cost of goods consumed and payments for services rendered during the inquiry period (item 6) (or the cost of goods purchased and payments for services rendered plus the algebraic difference of the value of stocks of raw material etc. (item 9) at the end and the beginning of the year) minus the payments to subcontractors for work done (item 8). The second approach is the following: The value added is the value of construction work carried out by the unit's own labour force during the inquiry period (item 10.c.)) plus the value of sales from industrial units (item 10.d.)) plus the value of goods sold in the same condition as purchased (item 10.e.)) minus the cost of goods consumed and payments for services rendered during the inquiry period (item 6) (or the cost of goods purchased and payments for services rendered plus the algebraic difference of the value of stocks of raw material etc. (item 9) at the end and the beginning of the year).

Tender Value of Projects Under Construction at the End of the Inquiry Period

102. This item relates to those projects where the unit is the main contractor (including works made on own account) except repair and maintenance work.

Actually the projects are the same as included under item 10.a.) (iii) (a), (b), and (c). (Value of work on projects which are under construction at the end of the inquiry period) but here the whole tender value should be reported. In case the tender value is not available estimations might be used.

TABLE B Scope: Own-account construction, carried out by independent units, of establishments or other organizations not classified to the construction industry proper.

Statistical Unit

a.) Number of statistical units

103. See text for Table A. para. 59.

b.) Kind of activity of the parent unit of the statistical unit

104. Kind of activity refers here to the ISIC major groups (2-digit) into which the parent organization of the kind-of-activity unit carrying out own-account construction work is classified. Thus the classification according to kind of activity will show how much own-account construction was carried out in the different industries.

Employment

105. See text for Table A. paras. 64-69.

Wages and Salaries Paid

106. See text for Table A. para. 70.

Value of Stocks of Raw Material, Fuel, and Components etc. at the Beginning and End of the Inquiry Period

107. See text for Table A. para. 89.

Cost of Goods Purchased or Consumed and Payments for Services Rendered

108. See text for Table A. If a part of the own-account work is contracted out then the value of work done by contractors should be included under this item as a

cost and also under item 6 as part of output.

Output

a.) Value of construction work carried out on own account during the inquiry period

109. Construction work carried out on own-account includes construction work done on own projects of the statistical unit including capital repairs to own buildings and other structures. Included is work carried out both by the unit's own labour force and by other statistical units (enterprises) on the basis of contracts for executing specified work on these projects. Current repairs and maintenance of own buildings and structures of the statistical unit are usually not included. However there are certain types of repair work in some countries (for example road repair and railway track repair) for which no clear distinction can be made between capital and current repair work. In these cases there is no alternative but for countries to continue with their previous practice. In principle the value of this own-account construction work should be valued at market prices, but it may be necessary to resort to valuation at costs because of the serious difficulties of market valuation. If part of the own-account work is contracted out the value of the contractors' work should be included here as part of output but then under item 5 (Cost of Goods Purchased or Consumed and Payments for Services Rendered during the Inquiry Period) the same amount should be included as a cost.

Value Added

110. Value added is the difference between gross output (item 6) and Cost of Goods Purchased or Consumed and Payments Rendered during the Inquiry Period (item 5).

TABLE C      Scope: Own-account construction carried out by establishments or other organizations not classified to the construction industry, with no independent construction unit

Statistical Unit

111. The statistical unit is the establishment (e.g. the manufacturing, etc. establishment) which carries out own-account construction without having an independent construction unit.

a.) Kind of activity of the establishment

112. The kind of activity refers to the ISIC major groups (2-digit) to which the establishment belongs. Thus the classification of work done according to kind of activity will show how much own-account construction is carried out in each industry.

b.) Number of statistical units

113. The number of units will show how many units in the different industries are carrying out own-account construction.

Output

Value of Construction work carried out during the inquiry period.

114. See text for Table B item 6. Para. 109.

TABLE D      Scope: The whole of construction activity

Projects for which Permits were Issued During the Inquiry Period

a.) Number of projects

115. Ideally a project should be an individual building or structure and in an ideal case one permit covers one building or structure only. However, in practice several buildings etc. might be covered by one permit. Even in this case it is advisable to obtain information on the number of buildings, structures and not the number of permits. It is especially important to enumerate separately the different types of buildings etc. as dwellings, schools, shops.

b.) Type of project

116. The type of project will indicate the main purpose which the project will serve. The minimum classification required for international purposes is: new residential building, other new building, new civil engineering work. For further sub-division the following might be recommended:

(i) Residential buildings, of which

1. One and two-dwelling houses;
2. Multi-dwelling houses;

(ii) Other new buildings, of which

1. Industrial buildings;
2. Commercial buildings;
3. Agricultural buildings;
4. Educational buildings;
5. Health buildings;

(iii) New civil engineering works, of which

1. Railways;
2. Road, highways, and airports;
3. Water and sewerage;
4. Dams and irrigation;

c.) Location of project

117. Usually the data is classified according to administrative regions. The most important classification for international purposes is the urban, rural division.

d.) The type of builder

118. In many countries individuals are building houses, smaller agricultural buildings etc. generally for themselves and this activity is significant. It might be interesting to classify these projects separately and if so it is necessary, for all projects, to collect information on the type of builder carrying out the major part of the construction work. The builder might be a construction unit (large or small) or other establishment (e.g. a manufacturing establishment carrying out own-account construction) or individuals who are building usually for themselves.

Total tender value of the project

119. The total estimated value (or tender value) of the project should be given excluding the value of the land, but including the value of the architectural work.

Projects Under Construction at the End of the Period

120. This should include projects where work was started but the project is not yet completed.

a.) Characteristics of the projects. (a.) b.) c.) d.)) The same as under paragraphs 115 through 118.

b.) Total tender value of project. The definition is the same as under paragraph 119.

c.) Total value of work done on the project up to the end of the inquiry period

121. Usually the percentage of the value of the project which has been completed would be estimated with the total value of the project being derived from the total tender value.

Projects Completed During the Inquiry Period

a.) Characteristics of the projects. (a.) b.) c.) d.)) The same as under paragraphs 115 through 118.

b.) Value and quantity of project completed

(i) Total value

The value of land should be excluded, the value paid for construction work including architectural fees should be included.

(ii) Quantity measures of the project

The quantity measures for the most important items may be the following: For buildings the floor area in square metres and the volume in cubic metres, for roads square metres and metres, for railway construction railroad in metres.

122. The floor area of a building is the sum of each floor of the building measured to the outer surface of the outer walls including the area of attics,



cellars and communal spaces. Areas of balconies and lobbies are excluded. In the case of buildings which are separated from others by common walls the measurement should be made from the centre line of these walls.

123. The volume of a building is the total volume between the outer surface of the outer walls, the level of the lowest floor and the exterior of the roof. When the level of the ground is lower than the lowest floor, the volume should be measured from the ground level. In the case of buildings separated from others by common walls the measurement should be made from the centre line of these walls.

A N N E X

International Recommendations for Construction Statistics for Countries  
in the Process of Developing their Statistical Systems

1. A number of lessons can be learned from the experience over the last few years with various international recommendations in the field of industrial statistics. It has become increasingly obvious that, in a number of fields, when international recommendations are made it is necessary to present them in two forms. One applicable to countries with well developed statistical systems and the other applicable to countries beginning to develop or in the process of developing their statistical system. Of course all countries will eventually aspire to the more comprehensive recommendations but an interim set of objectives is necessary. This second set will generally be a modified and shortened version of the more comprehensive recommendations.
2. This dual form of presentation has been suggested in discussion in several regional conferences.
3. In this annex a table is presented modifying the recommendations in two of the tables in Chapter II of the paper. The recommendations in Chapter II are applicable to countries with fairly well developed systems of construction statistics. The recommendations presented here are intended to be applicable to countries just beginning to develop their construction statistics.
4. The recommendations in Chapter II for "Data to be gathered and published" are contained in four tables A through D. Each table lists the items of data and the frequency recommended for different scopes and statistical units.
5. The Tables C and D do not need any modification to make them suitable and feasible for countries in the process of developing their construction statistics. Table C refers to own-account construction carried out by establishments or other organizations not classified to the construction industry and with no independent construction unit. The statistical unit in

this case is the establishment carrying out the own-account construction. Table D refers to the whole of construction activity when the statistical unit is the project or site which is usually identified by using building permits issued.

6. Tables A and B in Chapter II do, however, need some considerable modification. For the countries considered here it is possible to combine Tables A and B and present the recommendations in a single table. This is because Table A, which refers to units in "the construction industry proper (i.e. contract construction by general builders, civil engineers and special trade contractors)", when modified contains only a limited number of items of data. These items are sufficiently few in number to also be substantially applicable to units in an inquiry with the scope "own-account construction, carried out by independent units, of establishments or other organizations not classified to the construction industry proper". When this is not so it has been noted in the footnotes to the tables.

7. In the modified proposals made in the table in this annex, which refers to the same scope as Table A plus Table B in Chapter II the changes from Tables A and B are confined to the particular items of data which should be gathered and the frequency with which these items are required. Fewer items of data are proposed and some items are recommended for gathering less frequently or with a lower priority. These less ambitious recommendations for the countries concerned are an attempt to take account of their limited resources and the considerable difficulties of collecting construction statistics.

8. It can be seen by a comparison of the table presented here and Table A in Chapter II of the paper that certain items of data, which strictly speaking may need to be taken into account in deriving value added estimates, have been

ignored. For example stocks of materials at the beginning and end of the inquiry period, the cost of non-industrial services rendered by others, the value of sales of products from non-industrial units, and the value of goods bought and sold in the same condition as purchased. These items are not recommended for gathering because of the above-mentioned need to restrict the number of items of data.

9. The definitions contained in Chapter III of this paper are also applicable to the items of data listed in the table in this annex.

DATA TO BE GATHERED AND PUBLISHED<sup>1/</sup>. For Countries Beginning to Develop their Construction Statistics

Scope: Construction Industry Proper (Contract Construction by general builders, civil engineers and special trade contractors) and Own-Account Construction, carried out by independent units, of establishments or other organizations not classified to the construction industry proper.

Statistical Unit: Kind-of-activity unit<sup>2/</sup>

Items of data	Statistics to be gathered in						Statistics to be classified according to kind of activity in <sup>3/</sup>		
	basic inquiries		annual inquiries		monthly or quarterly inquiries		basic inquiries	annual inquiries	monthly or quarterly inquiries
	for all	only for large	for all	only for large	for all	only for large			
1	2	3	4	5	6	7	8	9	10
<b>1. Statistical Unit</b>									
a.) Number of units . . . . .							1	1	
b.) Kind of activity <sup>3/</sup> *. . . . .	1			1					
c.) Type of ownership . . . . .	2								
<b>2. Employment</b>									
a.) Total number of persons engaged during a single period <sup>4/</sup> of the inquiry period . . . . . distinguishing	1			1			1	1	
(i) Employees . . . . .	1					2			2
(ii) Others . . . . .	1								
b.) Number of employees engaged during several periods of the inquiry period* . . . . . distinguishing		1		1					
(i) Operatives*. . . . .		1		2					
(ii) Other employees* . . . . .		1		2					
c.) Average number of employees engaged during the inquiry period . . . . . distinguishing							1	1	
(i) Operatives . . . . .							1	2	
(ii) Other employees . . . . .							1	2	
<b>3. Wages and Salaries</b>									
a.) Wages and salaries paid to employees during the inquiry period . . . . . distinguishing payments to		1		1			1	1	
(i) Operatives . . . . .		1		2			1	2	
(ii) Other employees . . . . .		1		2			1	2	
<b>4. Fixed Assets<sup>5/</sup></b>									
a.) Total cost of new fixed assets acquired from others or produced on own account during the inquiry period . . . . . distinguishing		1		1			1	1	
(i) Machinery and other equipment (excluding transport equipment) . . . . .		1		2			1	2	
(ii) Transport equipment . . . . .		1		2			1	2	
(iii) Building, improvement to land and other construction work . . . . .		1		2			1	2	
<b>5. Cost of Goods Purchased or Consumed and Payments for Services Rendered <sup>6/</sup> during the Inquiry Period . . . . .</b>	2	1		1			1	1	
<b>6. Payments to Subcontractors for Work Done . . . . .</b>		1		1			1	1	

DATA TO BE GATHERED AND PUBLISHED<sup>1/</sup> For Countries Beginning to Develop their Construction Statistics  
 Scope: Construction Industry Proper (Contract Construction by general builders, civil engineers and special trade contractors) and Own-Account Construction, carried out by independent units, of establishments or other organizations not classified to the construction industry proper.  
 Statistical Unit: Kind-of-activity unit<sup>2/</sup>

Items of data  1	Statistics to be gathered in						Statistics to be classified according to kind of activity in 3/		
	basic inquiries		annual inquiries		monthly or quarterly inquiries		basic inquiries	annual inquiries	monthly or quarterly inquiries
	for all	only for large	for all	only for large	for all	only for large			
	statistical units						8	9	10
2	3	4	5	6	7	8	9	10	
7. <u>Output</u>									
a.) Value of work done on projects for which the unit is a main contractor 7/ or on own-account. . . . . distinguishing	2	1		1		2	1	1	2
(i) New residential buildings. . . . .	2	1		2			1	2	
(ii) New non-residential buildings . . . . .	2	1		2			1	2	
(iii) New civil engineering works. . . . .	2	1		2			1	2	
(iv) Repair and maintenance . . . . . distinguishing:	2	1		2			1	2	
1) Capital repair . . . . .		2					2		
2) Current repair and maintenance . . . . .		2					2		
b.) Value of work done as a sub-contractor . . . . .		1		1			1	1	
8. <u>Value Added</u>							1	1	

FOOTNOTES

- 1/ For international purposes all the data for the items to be gathered, except those marked with an asterisk, should be published. In the case of those items of data to be classified (as shown under columns 8 to 10) they should be published according to the classification suggested. Some derived items of data (2 c.) (1), (11), and 8) are also included in the list and these are marked only under the "to be classified" columns.
- 2/ Kind-of-activity unit means the part of the construction enterprise or, in the case of own-account construction, the part of the non-construction enterprise which carries out construction work, and activities ancillary to construction work.  
  
In the case of contract construction (i.e. units in the construction industry proper) this means, in most cases, the construction enterprise itself, but when the construction enterprise includes an establishment (i.e. a unit with separate records) carrying on a secondary industrial activity then the kind-of-activity unit will be the construction enterprise minus this establishment. Enterprise here means the construction enterprise or similar units (permanent offices, developers or residential projects etc.) where full records about the activity are available.
- 3/ In the case of own-account construction kind of activity refers to the ISIC major group (2-digit) of the establishment which is the parent organization of the (independent) kind-of-activity unit carrying out the own-account construction work. Thus the classification will show how much own-account construction was carried out in the different industries.  
  
In the case of contract construction the minimum classification recommended is according to (1) contract construction by general builders etc., and (11) contract construction by special trade contractors. National classification systems may indicate further possible groupings.
- 4/ As far as possible the period of peak activity should be used. However in the case of the smaller units it may be necessary to use the period immediately preceding the day of the inquiry.
- 5/ This item will be gathered for contract construction units only.
- 6/ This item does not include payments by main contractors for work done by subcontractors which is dealt with as a separate item (see item 6).
- 7/ For this item the main contractor will report all work done on the project for which he is the main contractor, whether that work was carried out by the main contractor (i.e. himself) or by a subcontractor. Consequently this item will be gathered only from those units which work as main contractors.

\* Indicates that data for this item need not be published for international purposes.