

REVIEWING CONSTRUCTION STATISTICS IN NORTH CYPRUS

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Abstract

Construction is one of the industries of strategic economic importance. Governments using their national institutions are involved in the collection of economic statistics, which indicate the state of their economy in an annual time series. However the completeness and accuracy of these statistics are always questionable by the stakeholders within the sector. Therefore there is an increasing need of accurate, manageable and reliable statistics for the sound analysis of the construction sector. The main purpose of this research is to review construction statistics in North Cyprus. The objectives of the review are to 1) engage with users to ascertain their views on the statistics and to identify their needs, and 2) investigate whether the statistics in their present form continue to meet user needs, and identify options for change. As part of the review, a user consultation exercise aimed to identify whether there are needs that justify continuing the statistics, as well as to ascertain users' views on European Statistical System (ESS) key dimensions of the quality of the statistics. This review of construction statistics will provide a conceptual framework of statistical information to be presented in a more comprehensive content, sufficient portrait, highly reliable in terms of quality, and responsive to dynamic changes of the sector (inflation, structural adjustment policies etc.). Additionally, it is aimed to detect and minimize the uncollected information and thus make contribution for prevention of unregistered activities within the sector.

Keywords: Construction Statistics, construction industry, North Cyprus.

INTRODUCTION

Governments all over the world are involved in the collection of economic statistics, which among other things indicate the state of their economy in an annual time series. These indicators are commonly known as official statistics. Construction is one of the industries of strategic economic importance and governments are obliged to take the industry's statistics seriously (K'Akumu, 2007). Construction as a sector of society is characterized by the economic activity of building and civil engineering works (Wells, 1986; Bon and Crosthwaite, 2000; K'Akumu, 2007). It is a sector of strategic economic importance especially for developing economies. This is because of its macroeconomic contributions to gross domestic product (GDP), gross fixed capital formation, employment and inter-sector linkages (United Nations Centre for Human Settlements, 1984). The United Nations defines construction as comprising 'economic activity directed to the creation, renovation, repair or extension of fixed assets in the form of buildings, land improvements of an engineering nature, and other such engineering constructions as roads, bridges, dams and so forth' (United Nations, 2001). Construction activity represents a significant share of the economies of most countries in terms of its contribution to GDP and total employment and it is also an important market for materials and products produced by other sectors of the economy. Pearce (2003) considered construction both in its narrow sense (on-site construction activity) with its contribution to GDP at around 5% and in a broader definition (including quarrying of construction raw materials, manufacture of building materials, sales of construction products and various associated professional services) making a contribution of about 10% of GDP (Ruddock, 2007a). In addition to the Pearce Report, the case for a new approach to the valuation of construction activity has come from two other areas. Firstly, the 'International Council for Research and Innovation in Building and Construction' (CIB) Revaluing Construction agenda focuses on improving the value of the final construction output and requires that the totality of activities involved in the production of the built environment is reviewed (Ruddock, 2007b). Secondly, Carassus (2004) proposes a framework system approach for understanding the construction sector. The rationale for this approach is based on the view that the role of the construction sector should be viewed in a wider context than that of the narrowly-defined 'International Standard Industrial Classification' (ISIC) definition of the industry.

There are some impressive reviews of construction statistics in certain developed and developing countries conducted with a view to improving them. The available literature confirms that the key concerns of construction statistics reviews are mainly with their adequacy (K'Akumu, 2007). The question of adequacy can be split into two: (i) scope; and (ii) quality that can engender reliability. Apart from these, construction economists readily single out the uniqueness of linkages between construction and the economy (Briscoe, 1988; Hillebrandt, 2000). The portrait of the role of construction in the economy is therefore a significant responsibility of construction statistics upon which they can be evaluated. The responsiveness of construction statistics in the light of transforming economic conditions is another important attribute of construction statistics that may be used to evaluate them. As time changes, construction statistics may change with time to maintain relevance (K'Akumu, 2007).

The Annan Plan has had a major impact on the construction industry and its sub-sectors with increasing production, import and sale volumes compared to previous records in North Cyprus. Between the years of 2003 and 2009, many building and civil engineering projects like hotels, residents, dormitories, and highways were constructed by the private sector

initiatives such as owners, investors, developers, and contracting firms. Additionally, many infrastructure projects were constructed under the Grant Program of United Nations Development Programme (UNDP) and the European Union. On the other hand, campus construction of some state universities of Turkey and local private universities are ongoing. Despite these economic developments, a national authority on statistics i.e State Statistics Institute has not been established yet. This creates a great lack of reaching and accessing updated statistic information needed within the construction sector as in other sectors. Department of Statistics and Research (DSR) under the State Planning Organization (SPO), Union of the Chambers of Cyprus Turkish Engineers and Architects (UCCTEA) and Association of Cyprus Turkish Building Contractors (ACTBC) are the current public and non-governmental organizations which provide statistical information to the sector. But the statistical reports prepared by these institutions are not timely and not equipped with sufficient information for the needs of the sector. Therefore all the stakeholders (investors, contractors, architects, engineers, consultants, material suppliers etc.) face difficulties in timely access to the information they need and therefore they cannot make sound decisions.

There is a widespread recognition by uses of statistics that managers in North Cyprus construction industry are poorly served by existing data in the formulation of policies and strategies. Considering DSR's current circumstances, lack of departmental investment in organizational structure, qualified staff and also in hard-and software has prevented the introduction of up-to-date systems to analyze relevant data. Although the construction industry has undergone considerably change over the past decade, this has not in any way been adequately reflected in available official data. The statistical requirements of the Government differ considerably from those which should and could make a positive contribution to decision-making within the construction industry. There are criticisms in the area of dissemination and feedback. Dissemination refers to both timeliness in the release of the data and in the detail in which the data are made available. The DSR was aware of the whole panoply of changes affecting the industry in the past decade, but failed to ensure that the statistical resources were available to monitor and track some of those changes.

The main purpose of this research is to review construction statistics in North Cyprus. The objectives of the review are to 1) engage with users to ascertain their views on the statistics and to identify their needs, and 2) investigate whether the statistics in their present form continue to meet user needs, and identify options for change. As part of the review, a user consultation exercise aimed to identify whether there are needs that justify continuing the statistics, as well as to ascertain users' views on European Statistical System (ESS) key dimensions of the quality of the statistics.

CONSTRUCTING CONSTRUCTION STATISTICS

Statistics are the cornerstone of most decisions business people take and, indeed, the cornerstone of most government policy. The gathering of data by the Government is seen purely from the point of providing evidence for the ultimate management of the economy rather than statistics which should be helpful to the industry itself. In an industry as large and complex as construction, statistics play a very crucial role, in terms of monitoring both the external and internal factors which influence its structure, its performance and its behavior. To have statistics in adequate detail is a problem both quality and quantity. The quantity and quality of the range of statistics available to the industry is therefore of concern to all those who operate within construction or whose roles call for a sound knowledge of the industry and the factors which affect it. Quality includes definitions, coverage, reliability, consistency

and integrity. These are essentially the concerns of the statisticians who gather and process data. Quality, however, goes beyond this set of factors. It also means accuracy, relevance and timeliness, to which users attach great importance. In terms of coverage, there is no general agreement about what the definition of the construction industry ought to be. Coverage of what is meant by the construction industry is therefore one of the issues which has to be considered in the wake of various endeavors under way to revise the current range of statistics produced by the Statistical Services (Cannon, 1994). Coverage of the industry in terms of obtaining sufficient correct information from firms is an issue with which official statisticians grapple as a matter of course. It is, however, an ongoing problem in an industry where entry and exit are extremely easy and where self-employment has become the major form of labor supply in the past decade or so. This is aggravated by the existence of a large black economy sector. The problem of unregistered labor in the construction industry is international, to the point that in some European countries the official measures of construction output include an estimate for “black economy work”.

Construction statistics refer to a collection of selected numerical facts that seek to portray certain conditions or attributes of the construction industry (K'Akumu, 2007). The primary source of data for construction statistics is current and annual reporting. Reports are submitted to agencies of the Central Statistical Board of the countries by builders (including private builders) and by construction and designing and surveying organizations. In addition to reports, construction statistics carries out censuses and one-time inventories and surveys (for example, statistics of construction machinery, uncompleted construction work, stocks of materials and equipment at construction sites). Statistical agencies submit material to State Planning Committees and to ministries and departments for the preparation of future plans for capital construction. They also investigate specific problems, summarize statistical practices, and refine the methodology used for indexes.

To improve the quality of international (and national) data provision generally, Lievesley (2001) indicated that, although the term ‘quality’, when applied to official statistics, is difficult to define, the following components should apply: (1) validity, (2) reliability, (3) currency, (4) clarity and transparency with respect to known limitations, and (5) comparability through adherence to internationally agreed standards. In the context of a truly global market for construction, an international strategy is required to ensure that national and international statistical systems are able to provide accurate and valid information. In many parts of the world the collection of reliable national information on construction activity is not an easy task, and the measurement of comparable, cross-national data can be problematic. Ruddock (2002) considered possible strategies for the improvement of data collection systems in the context of user needs.

Coverage of Construction Statistics in North Cyprus

Data required for producing the statistical outputs is collected from a variety of sources (Ministry of Public Works, municipalities, association of building contractors, etc.), and then is processed using different methods. The data sources used in the report are mainly annual sample surveys and censuses, monthly inquiries and administrative records. Data on public and semi-public construction activity are derived from government records such as the budget, departmental reports and financial statements. For the private sector, the data are obtained through special questionnaires that are filled in by enumerators of the Statistical Service. In the case of data on building permits, these are compiled through a copy of the actual permit issued by the appropriate authorities (municipalities and district administration offices) and forwarded to the Statistical Service.

DSR's Yearly Construction Statistics in North Cyprus comprises the following statistical outputs:

- Main indicators of the construction industry
- Output of new construction by category
- New construction by type of project
- Construction costs per square meter
- Dwellings completed by sector, district and type
- Indices of costs in the construction sector
- Cost Analysis by construction activity
- Price index of construction materials
- Building permits authorized
- Employment in construction

REVIEW OF CONSTRUCTION STATISTICS

Construction statistics would give vital insight into the contribution of construction to economic development. In spite of the importance of construction, its statistics are usually of questionable quality even in developed countries (K'Akumu, 2007). In the United States of America (USA), the review of construction statistics has been taking place for a long time. Gill (1933) carried out a review of the construction statistics of the USA. He felt that there was "lack of specific and accurate information available in USA on the subjects of construction and employment in construction" (Gill, 1933). Gill's argument about inadequate data and need for adequate data lays the foundation for any reviews of construction statistics. The USA President underscored the fact that statistical shortcomings had handicapped the development of effective policies to combat construction inflation and to meet future construction needs (Swerdloff, 1971), and therefore asked the Cabinet Committee on Construction for recommendations on improving the statistical information on construction. The US recognizes that the construction industry continually undergoes change and that it is important for the national statistical agency to provide users of construction statistics a forum to discuss statistical programmes vis-a-vis their needs (K'Akumu, 2007). Fleming (1986) had pointed out the shortcomings of the UK's construction statistics. There has been a long debate on the inadequacy of construction statistics between UK government agencies in charge of statistics, i.e. the Department of Environment (DoE) and the National Economic Development Office (NEDO) on the one hand, and users of construction statistics on the other (Cannon, 1994). Bon (1990) and Cannon (1994) consider the usability aspects of existing public and private data and the failure of such data to meet the needs of its users. Cannon (1994) point out that many industry users may be unaware of the availability of some information because the originating institution may not recognize the usefulness of disseminating the data to a wider audience. Meikle and Grilli (1999), in their study of the measurement of construction output in European countries, point out that construction output data are not consistent in content and there is no generally accepted standard international definition. Lopes (1998) referred to the inadequacy and rudimentary nature of data on the construction industry in developing countries and pointed out the lack of input-output data in such construction sectors. The uncoordinated collection of data via several agencies leads to unnecessary processing problems, which could be eradicated by the setting-up of a central national agency. Ofori (2000) proposed the notion of a 'central data bank for construction' and took this notion further, advocating the development of regional construction databases for groups of countries. Pearce (2003) considered measures of the construction industry in the UK and raised the problem of definition conceived in terms of 'broad' and 'narrow' classifications.

Briscoe (2006) examined the broader statistical issues in greater depth to identify shortcomings that could cause some of the findings presented by Pearce, and similar studies, to need qualification and possible revision. K'Akumu (2007) evaluated construction statistics of a developing country, Kenya, in order to ascertain their adequacy in terms of scope, portrait, reliability and responsiveness in their coverage of the construction industry.

SURVEY OF USERS AND CONSTRUCTION STATISTICS USED IN NORTH CYPRUS

The review of construction statistics includes data collection and compilation methodologies used to produce the statistics. User needs and requirements for the statistics were identified and their views on quality of the statistics were ascertained in line with the European Statistical System (ESS) dimensions of quality.

Sampling and Data collection

The study was focused on the public and private organizations actively taking part in the construction industry. The lists of all registered private organizations were obtained from the concerned chambers (i.e Union of Chambers of Cyprus Turkish Engineers and Architects; Turkish Cypriot Chamber of Commerce), and associations (i.e Association of Cyprus Turkish Building Contractors). Particular departments of some ministries (i.e Department of City Planning; Department of Planning and Construction; Water Works Department), academic institutions (i.e Universities), and municipalities are also included in the survey. For the study of wide range of organizations using the statistics, the following criteria were used in the selection of respondents taken randomly in the organizations. All respondents were

- either engineers or architects, and
- either from the top management or senior management in their respective departments.

The criteria for selection of sampling companies were homogeneously distributed throughout the country in order to ensure a complete view of the sector; and most of the companies were involved in construction work and design activities. With regard to the stages within the construction process in which the respondent companies were involved, most worked in at least two of them.

The profile of the respondents reflected the selection criteria used for the participant companies. Respondents were homogeneously distributed throughout the country. Selection of respondents for the interview was based on those who are involved in managing and working the day-to-day construction activities of North Cyprus. A collection of opinions from different organization members is assembled instead of a single respondent from each firm. Respondents were purposively selected to provide a representative sample in terms of the definition of the North Cyprus construction industry, i.e., consultancy, contractor, material suppliers and design offices.

The survey was distributed to construction professionals working in different organizations ranged from Material Suppliers, Design Offices and contracting firms in private sector and public organizations. Having considered that statistics were identified through continuous collaboration among members, respondents from different professional backgrounds, which include architects, engineers, project managers, and project coordinators were approached. As a result, 175 prospective respondents were enlisted and to whom the survey was sent. 134 completed questionnaires were returned. The overall response rate is 76 %.

Regarding the respondents' background, the results reported in Table 1 indicate that the respondents are playing different roles in firms ranged from engineers to project coordinators. Thus, it is considered that opinions of members working in different construction organizations have been obtained.

Table 1: Surveys received and the respondents' background matrix

Respondents' background	Material Suppliers	Trade Associations	Design Offices	Consultancy	Contractors	Government	Academic Institutions	Municipalities	Number of questionnaire received
Engineer	8	8	4	3	3	2	1	1	30
Architect	6	6	3	3	2	2	1	1	24
Project Managers	10	9	8	7	4	3	2	1	44
Project Coordinators	9	8	6	5	3	3	1	1	36
TOTAL	33	31	21	18	12	10	5	4	134

User Consultation Methodology

Understanding users of the statistics is fundamental to engaging with them effectively so as to improve the public value derived from the data. As part of the review, a consultation was conducted to ascertain users' views on the quality of the statistics, to understand how they make use of the data and to identify their needs. The user consultation was conducted through a user survey and carried out via e-mail and postal surveys using a questionnaire involve a wide range of users from various backgrounds.

The questionnaire was designed to elicit core user needs and their views on key dimensions of statistical quality. It was reviewed by key stakeholders (contractors, engineers, architects, consultants, material suppliers etc.) to ensure correct interpretation and a logical order of questions. Responses received from the e-mail and postal surveys produced both qualitative and quantitative data which were processed and analyzed using the SPSS software.

The questionnaire covers mainly types of respondent, purposes for using the construction statistics, frequency of uses of the construction statistics, and views on the quality of the statistics (timeliness, accuracy, relevance, accessibility and clarity, comparability with other data). The questionnaire also includes structured open questions covering the main use of the statistics, the usefulness of the statistics, user requirements in terms of details, coverage and types of statistics, problems encountered when using the statistics, and impact of discontinuation of the statistics.

Survey Results

A total of 134 responses were received, including postal responses.

Types of Respondent

Respondents to the survey came from a wide range of organizations, reflecting a diversity of users of the construction statistics. Figure 1. provides an overview of the organizations where respondents work or study. Respondents from Material suppliers (25%) and Trade Associations (23%) firms make up the two largest groups, accounting for nearly half of total respondents.

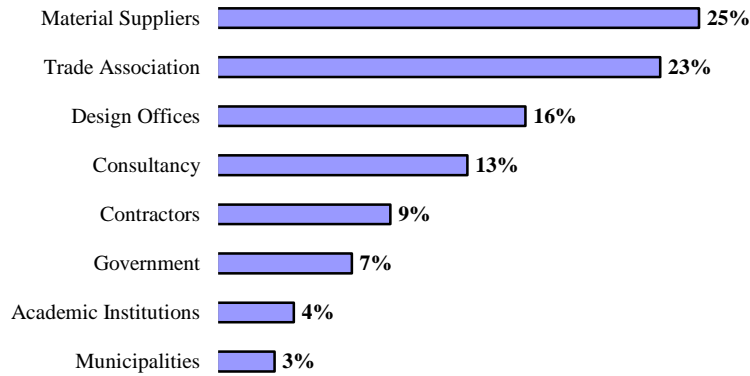


Figure 1: Breakdown of types of respondent

Uses of the Statistics

In terms of types of statistics used, both statistics of main indicators of the industry and statistics of output of new construction by category were used by the largest proportion of respondents (62%) followed by new construction by type of project (58%) and construction costs per square meter (57%). In comparison, only 10% respondents use the statistics of employment in construction, as indicated in Figure 2.

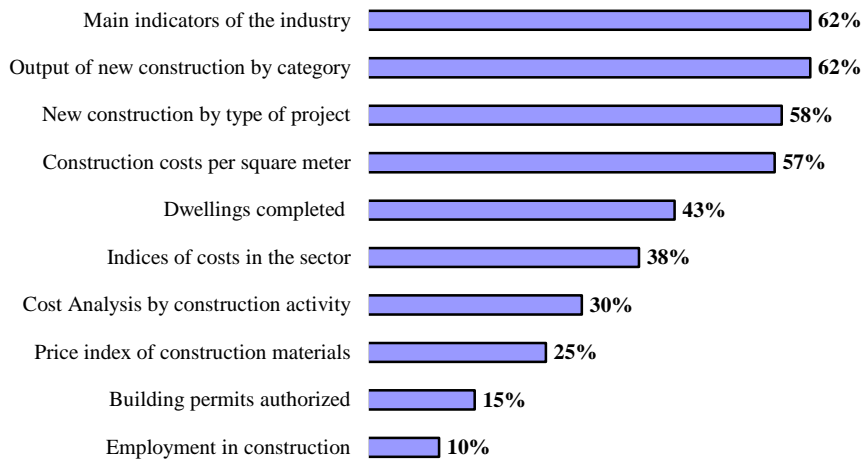


Figure 2: Type of statistics used

To discern respondents’ principal interests in the various statistics, the uses of the statistics by types of respondent were analyzed as displayed in Table 2. The table indicates that Material Suppliers showed most interest in Main indicators of the construction industry and were least interested in employment in construction data, whereas users of employment in construction are mainly from Academic Institutions and Consultancy firms.

Table 2: Statistics used by types of respondent

	Contractors	Consultancy	Government	Material Supplier	Trade Association	Academic Institution	Design Offices	Total Use
Main indicators of the construction industry	3	7	3	11	6	5	4	39
Output of new construction by category	3	6	3	10	3	4	6	35
New construction by type of project	5	6	2	8	4	4	3	32
Construction costs per square meter	5	5	2	7	4	4	4	31
Dwellings completed by sector, district and type	6	6	3	2	4	5	4	30
Indices of costs in the construction sector	5	5	6	2	4	5	2	29
Cost Analysis by construction activity	6	4	2	6	3	3	4	28
Price index of construction materials	5	5	3	3	4	2	2	24
Building permits authorized	2	5	3	2	2	6	2	22
Employment in construction	2	4	3	2	2	5	2	20

Figure 3. displays the results concerning respondents' purposes for using the construction statistics. The largest proportion of respondents (67%) use the statistics for monitoring industry information, followed by assessing industry trends (55%). The statistics on construction are the only key source for assessing the economic environment for property market, for instance, monitoring the impact of the recession on residential real estates. Moreover, the price data of property market are useful for stakeholders to monitor and assess the variations in prices of particular real estates and the impact of recession and inflation on the prices.

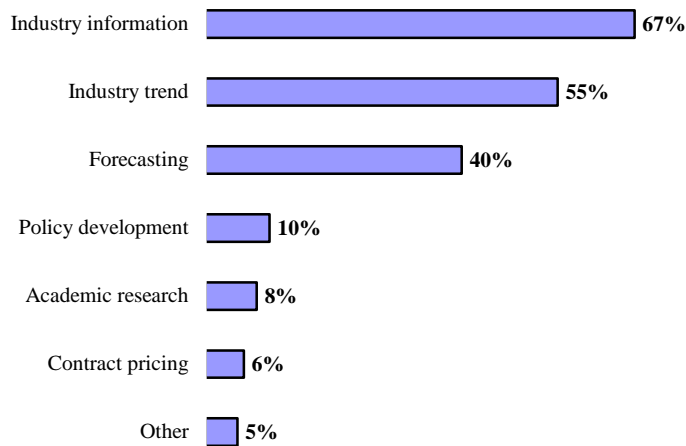


Figure 3: Purposes for using the construction statistics

Regarding the frequency of uses of the statistics, Figure 4. illustrates how often respondents use the construction statistics. It indicates that most respondents use the statistics yearly, which is also the frequency that the statistics are published.

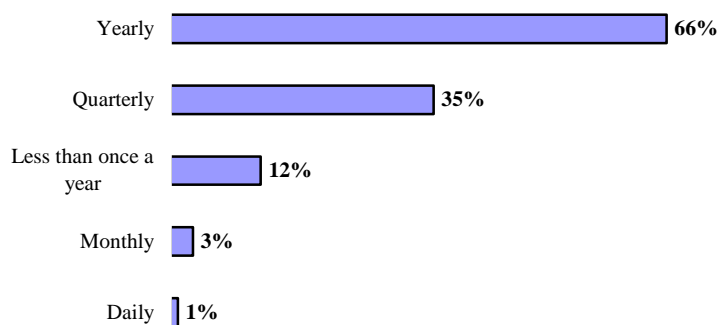


Figure 4: Frequency of uses of the construction statistics

Impact of Discontinuing the Statistics

Table 3. indicates how respondents' work would not be affected if the statistics were discontinued. The effect of discontinuing the statistics on respondents varies according to the types of statistics, but in the main, a majority of respondents felt that discontinuing the statistics would not cause major or significant disruptions on their work.

Table 3: Impact of discontinuing the statistics

	Major Disruption	Significant Disruption	Some Disruption	No effect
Main indicators of the construction industry	9%	15%	23%	53%
Output of new construction by category	8%	14%	21%	57%
New construction by type of project	8%	13%	20%	59%
Construction costs per square meter	8%	12%	20%	60%
Dwellings completed by sector, district and type	7%	12%	19%	62%
Indices of costs in the construction sector	7%	11%	19%	61%
Cost Analysis by construction activity	8%	12%	20%	60%
Price index of construction materials	6%	11%	19%	64%
Building permits authorized	5%	10%	18%	67%
Employment in construction	4%	9%	16%	71%

Respondent Views on the Quality of the Statistics

In the survey, the extent of respondents' satisfaction with the quality of the construction statistical outputs was ascertained in line with the following European Statistical System (ESS) dimensions of quality; *timeliness, accuracy, relevance, accessibility* and *clarity, coherence* (comparability with other data). In addition respondents' views were also asked on information available for how data is collected and level of details in the statistics.

The Likert scaling technique was adopted and applied to a majority of questions for ease and uniformity of response. Its application implied for the most part that analysis of data was based on a scoring system. Respondents were asked to state the extent to which they agreed with each statement by using a 5-point Likert type scale.

As illustrated in the Tables 4., 5., and 6. below, a large proportion of respondents were unsatisfied with the quality of each type of statistics in terms of relevance, accuracy and timeliness due to the lack of information on data collection methods and data quality.

Table 4: I am satisfied with the relevance of the statistics to my work.

	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
Main indicators of the construction industry	10%	11%	3%	44%	32%
Output of new construction by category	10%	12%	2%	42%	34%
New construction by type of project	11%	13%	2%	41%	33%
Construction costs per square meter	11%	14%	3%	41%	31%
Dwellings completed by sector, district and type	12%	15%	2%	43%	28%
Indices of costs in the construction sector	12%	14%	2%	42%	30%
Cost Analysis by construction activity	11%	15%	3%	42%	29%
Price index of construction materials	12%	15%	3%	44%	26%
Building permits authorized	10%	11%	3%	43%	33%
Employment in construction	9%	11%	3%	44%	33%

Table 5: I am satisfied with the accuracy of the statistics

	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
Main indicators of the construction industry	18%	17%	3%	42%	20%
Output of new construction by category	17%	15%	2%	40%	26%
New construction by type of project	17%	16%	3%	39%	25%
Construction costs per square meter	18%	17%	3%	41%	21%
Dwellings completed by sector, district and type	16%	16%	3%	40%	25%
Indices of costs in the construction sector	15%	15%	2%	41%	27%
Cost Analysis by construction activity	14%	15%	3%	40%	28%
Price index of construction materials	14%	16%	3%	42%	25%
Building permits authorized	14%	15%	3%	40%	28%
Employment in construction	13%	13%	3%	43%	28%

Table 6: I am satisfied with how up-to-date the statistics are

	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
Main indicators of the construction industry	8%	10%	3%	44%	35%
Output of new construction by category	9%	12%	3%	42%	34%
New construction by type of project	10%	11%	2%	41%	36%
Construction costs per square meter	11%	14%	3%	38%	34%
Dwellings completed by sector, district and type	12%	15%	2%	37%	34%
Indices of costs in the construction sector	12%	14%	3%	39%	32%
Cost Analysis by construction activity	11%	14%	3%	38%	34%
Price index of construction materials	10%	13%	3%	40%	34%
Building permits authorized	10%	12%	3%	42%	35%
Employment in construction	9%	10%	3%	45%	33%

Table 7. indicates how unsatisfied respondents were with other key quality attributes of the statistics as a whole. More than 65% of respondents conveyed their dissatisfaction with all of the quality attributes. “Information available for how data is collected” gained a high disapproving rate, both with 70% of respondents feeling very dissatisfied or dissatisfied.

Table 7: Respondents satisfaction on the following aspects of the statistics

	Very satisfied	Satisfied	Undecided	Dissatisfied	Very dissatisfied
Clarity of presentation	12	18	2	41	27
Ease of access	14	19	2	36	29
Comparability with other data	13	17	2	40	28
Level of detail	14	18	2	40	26
Information available for how data is collected	11	16	3	42	28

CONCEPTUAL FRAMEWORK OF CONSTRUCTION STATISTICS PROGRAM FOR NORTH CYPRUS

Figure 5. shows the conceptual framework of construction statistics program. The flowchart illustrates how data in surveys are collected and employed in providing direct estimates or as input to construction statistics programs. Information on building permits issued for new private residential construction is collected from permit-issuing jurisdictions on number of housing unit permits issued and their permit valuation. These statistics are a leading economic indicator. Data are to be collected monthly from a sample of permit issuing places and annually from the remaining permit issuing places. Monthly, quarterly and annual estimates of housing units authorized by building permits can be available on the Internet. The survey of output for construction collects and publishes information on residential units started, sold, and completed each month. Information is collected directly from construction firms by field representatives. Firms should report business receipts, payroll, assets, and other economic information as well as types of construction they are engaged in during the year of the census. Included in the reports are values of work by type of construction, statistics by size classes, assets data, etc. The system achieves a more rapid collection of data, fewer late reports, and better quality of data since questionable responses are to be verified immediately. All data

collected in the field are to be transmitted directly to headquarters for review and tabulation. Monthly estimates of starts, sales, and completions are made at the national level and for regions, and starts and completions estimates are made for selected regions for type of buildings. The quarterly or annual estimates will include units started, units sold, units completed, and a wide range of characteristics of housing such as sales price, square footage of house, presence of garage, etc. Starts and completions estimates are to be published as preliminary, first, and second revisions. Since sales estimates are subject to greater numbers of late reports than starts and completions, they may have a third revision.

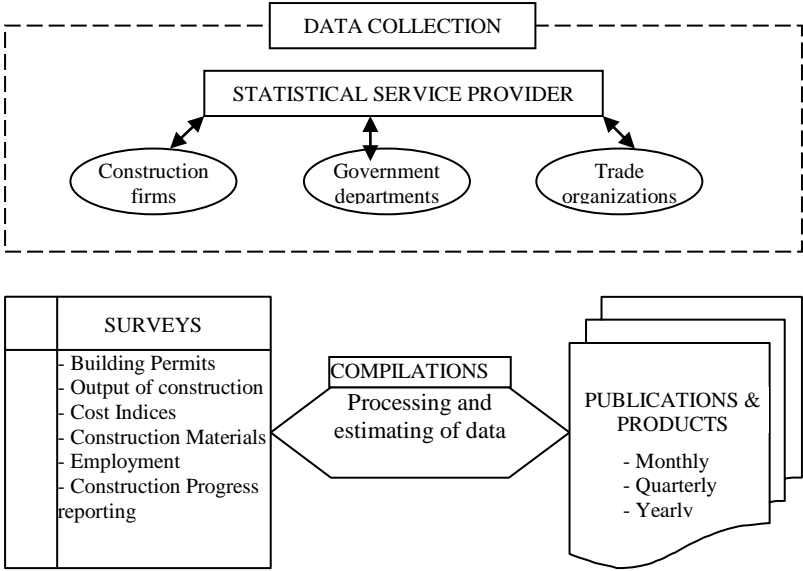


Figure 5: Conceptual Framework of Construction Statistics Program

CONCLUSIONS AND RECOMMENDATIONS

The review of construction statistics documented and examined data collection and compilation methodologies used to produce the statistics. It identified user needs and requirements for the statistics and ascertained their views on quality of the statistics through user consultation. The production of the statistics draws on a multitude of data sources and requires coordinated efforts from SPO-DSR, UCCTEA and ACTCC. The findings of the review indicate that the current data collection methodologies need improving to address various quality issues such as the coverage and accuracy of data inquiry panels.

The statistics have users from various backgrounds with a variety of purposes. Main uses include monitoring market information and assessing industry trends. Material supplier firms and trade associations account for more than half of respondents. The majority of respondents from the construction industry consider the statistics essential and helpful. Respondents' views on the quality of the statistics are mainly negative, because they are unsatisfied with the information available on how data is collected, indicating improvement needed in this area. Respondents from the industry have a stronger need for continuing the statistics than those from the government. The review also identified several user requirements for both existing statistics and new data.

This review of construction statistics also provides a conceptual framework of statistical information to be presented in a more comprehensive content, sufficient portrait, highly

reliable in terms of quality, and responsive to dynamic changes of the sector (inflation, structural adjustment policies etc.). Additionally, it is aimed to detect and minimize the uncollected information and thus make contribution for prevention of unregistered activities within the sector.

Recommendations

The main recommendations of the review are for improving the methodologies used to compile the statistics, for user consultation, for user requirements, and compliance with the statistical code:

- The coverage and accuracy of the sample panels used in the data inquiries should be regularly monitored and checked against other sampling frames and with relevant trade associations to ensure the representativeness of the data.
- DSR should consider options for improving response rates
- Methodologies used to process survey results should be improved.
- Sharing the responsibility of collecting and publishing the statistics with others should be considered.
- Wide and regular user consultation should be maintained continually through various ways such as meetings of Consultative Committee on Construction Industry Statistics and periodic on-line consultations.
- DSR should look into publishing more data alongside the existing statistics as requested.
- DSR should investigate how to modify the coverage of the statistics, maintaining their relevance to users and affordability.
- DSR should publish supporting commentary
- DSR should publish a revisions policy, and explain the nature and extent of revisions when revised statistics are released.
- DSR should set out a quality improvement plan to address quality issues identified during this review.
- DSR should ensure the staffs who deal with confidential data sign declarations covering their obligations

LITERATURE

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