

Part-I

Census Background and Operation

Introduction

Background

Agriculture, perhaps the oldest economic activity of mankind, is the basic source of employment and income for rural Bangladesh. It plays a dominant role in socio-economic development of the country. The economic progress of the country is mainly dependent on success in the field of agriculture. Government have, therefore, accorded a high priority to develop the agriculture sector.

In order to determine appropriate policy initiatives, basic data relating to the structure and other important characteristics of agriculture sector are essential. Alleviation of poverty, an important policy objective of government especially in rural areas, can be largely achieved by increased employment through agriculture growth.

Census of agriculture and livestock conducted on periodic basis provides data regarding number of farm holdings, holding size, tenure, land utilization, types of farming, cropping pattern, farming practices, livestock & poultry, farm implements, and employment. Such data are all bench –mark measures and are used as basic inputs to framing development strategy and monitoring progress of the agriculture sector.

Bangladesh Bureau of Statistics (BBS) has subscribed to the programme of World Census of Agriculture advocated by FAO. Following the programme, the Bureau conducted the census of agriculture all over the country. The census for the first time covered simultaneously both rural and urban areas by adopting the same questionnaire. It was a large-scale country-wide statistical operation of BBS.

Boundaries and geology

Bangladesh lies in north-east part of south Asia between 20° 34' and 26° 38' north latitude and 88° 01' and 92° 41' east longitude. The country borders India on three sides - west, north, and part east. Myanmar lies along south & part east border. The Bay of Bengal in the south flanks entire coastal belt of the country. The geographic area of the country is 1,47,570 sq kilometers . Except hilly regions in north- east and south-east and also some high lands in north-west, the country is a fertile flat delta formed by a network of over 250 rivers and their tributaries .

The mightiest rivers are the Ganges, the Brahmaputra, the Jamuna, and the Meghna. Much of the delta land mass is in Ganges-Brahmaputra basin. The vast landscape has predominately alluvial soils enriched every year by silt -deposits following wide-spread floodings caused by heavy rains in monsoon season. The country has subtropical climate and experiences sometimes cyclones and tidal surges that become occasionally quite devastating in event of wind speed rising 100 miles or more per hour.

The coast, acknowledged as being the longest, is slowly reshaping due to land- accretions following constant silting of the Bay. The soil here features red - brown old alluvial deposit to recent alluvium in form of gray sand and clayish loams. The coastal alluvial of tidal origin is silty yellow sandy loams.

Climate

The weather undergoes relatively a small range of temperature variation around the year. In winter season from November to early March the average temperature remains around 27°C. The maximum temperature in longer summer season from mid-March to October is relatively high, nearly 37°C and, therefore, various tropical crops can be grown almost throughout the year.

Rainfall

Annual average rainfall is over 2,410 mm per year with seasonal and regional variation from 3,351 mm in north-east to 1,315 mm in the west. The highest rainfall is recorded during monsoon period (June-September) and ranges per month from over 569 mm in north-east to about 249 mm in the west. During premonsoon season (March-May), per month rainfall varies from 58 mm in the west to 276 mm in the east. During monsoon the run-offs from heavy rains and river overflows often causes flooding that inundates occasionally large parts of the country.

Political and administrative setup

Bangladesh is governed by a democratically elected parliament. The government is headed by the Prime Minister. The country is divided into seven administrative divisions, each placed under a division commissioner. Every division is further subdivided into districts/zilas numbering 64. The civil administration of each district/zila is looked after by a deputy commissioner.

Each district/ zila has a number of upazilas/thanas. There are now 534 upazilas/thanas in the country. The upazila/thana set-up has been reorganized and expanded for efficient administration and quick disposal of local issues and problems. Upazila is now the focal point of public administration at lower level. Every upazila is divided into unions and below unions are mauzas, the lowest administrative units. The union and mauza equivalents in urban domain are “ward” and “mahalla” administrative units. There are 7,648 unions and wards and 65,806 mauzas and mahallas in the country. The number of urban municipalities including municipal corporations were 314 in 2008

Communication

The country has about 2,460 kilometers of railway routes, nearly 20,782 kilometers of paved roads, and close to 5,968 kilometers of perennial and seasonal waterways. Along with development of road transport network, efforts are being made to develop water transport system, the cheapest means of transportation. Both domestic and international travels can be accessed in three cities – Dhaka, Chittagong, and Sylhet. The airports of these cities are connected to many countries across the globe. Regular domestic air services are operated by the national airlines, Bangladesh Biman, between Dhaka and other major towns. A number of private airline companies has begun operating air services to selected destinations both within and outside the country. The country's two major sea ports are at Chittagong and Mongla. Extensive telecommunication and electronic mailing services have also been established with major cities of the world through earth satellite ground stations.

Population

The fourth decennial population census of the country was conducted in January 2001 by BBS. The population was enumerated 124.4 million. However, after taking into account the census underenumeration, the adjusted total population numbered 130.5 million, in urban 23.5 percent and in rural 76.5 percent.

Economy

The economy is predominantly agrarian, employing 48 percent of labour force. The GDP share of agriculture is around 22 percent. On the other hand, the manufacturing sector contributes about 17 percent to the GDP and is dominated by ready made garments, cotton textiles, and chemical industries.

Rice, wheat, jute, sugarcane, tobacco, oilseeds, pulses, and potatoes are the major agriculture crops. Various kinds of vegetables and spices are also produced. The country currently produces about 59 metric tons of tea per year a sizeable quantity of which is exported to foreign markets after meeting domestic demand. The country produces superior quality jute. The annual production of the fiber crop is 4,622 thousand bales. A substantial portion of export earnings still comes from raw jute and jute products. Among fruits and nuts grown in the country, those noteworthy are banana, papaya, pineapple, mango, jackfruit, guava, plum, and coconut. Except coconut, banana, and papaya growing throughout the year, others are seasonal. The country is marginally deficit in productions of food grains.

The country is rich in fish wealth. Rivers, rivulets, canals, haors (natural depressions or inland lakes), tanks, large low-lying areas, and even paddy fields (remaining inundated nearly 6 months every year) have land coverage nearly 12 million acres. Tropical fishes of different varieties abound in this vast water space. Rice and fish constitute staple diets of people. The Bay allows reaping an immense potential of marine fishing. Marine catches are, however, much smaller in volume than inland fish production.

National Statistical System

The national statistical system of the country is managed and guided by Bangladesh Bureau of Statistics (BBS). The Bureau is headed by a Director-General. It has several functional wings, each functioning under a Director. For all policy matters, BBS is under administrative control of the Statistics Division headed by a Secretary to the Government.

As being the national statistical institution of the country, BBS generates and disseminates all official statistics of the country. Programmes of censuses and sample surveys are carried out by the Bureau to collect, compile, analyse, and make available statistics of all sectors and meet data needs for development planning, research, policy formulation, and decision making.

All activities of BBS official statistics are coordinated and overseen by a National Statistical Council (NSC) with Minister for Planning as its Chairman and Secretary, Statistics Division as Vice-Chairman. The Council has members from various ministries and statistics departments of some universities, and research agencies. Major policy decisions regarding timings, scopes, contents, and methods of operation of different statistical undertakings are made by the 'NSC'. The Statistics Division provides secretarial services to the Council.

Agriculture Census

Agriculture censuses are carried out under legal mandates of the Agricultural Census ACT NO. XLI of 1958 (as amended in 1983). The Act, inter alia, authorizes the government to appoint a Commissioner (Director-General) and other officials for conducting the census. The Act also makes binding on the part of respondents to answer questions asked by authorized census enumerators or census officials. At the same time, it sanctions maintaining strict confidentiality of information collected from individuals.

The Act authorizes collection of information on following broad items:

- land ownership and land tenure
- land unit and sub-division of land
- land utilization
- crop acreage and production
- livestock and poultry
- employment in agriculture
- agricultural population
- agricultural power and machinery
- irrigation and drainage
- fertilizer and soil dressing
- wood and fishery products
- agricultural credit
- agriculture and sericulture
- fruits and vegetable products
- such other matters which the government may deem fit to include as census items.

The practice of conducting a census of agriculture at an interval of five or ten years has now become an established national and international routine activity. The first world census of agriculture was promoted by the International Institute of Agriculture (IIA). The FAO of UN, successor of IIA, has continued espousing implementation of the census programme in various member countries. Bangladesh carried out agriculture censuses in 1960, 1977, 1983-84, 1996, and 2008. The censuses were designed to provide a broad range of statistics on both structure and flow aspects of agriculture according to defined government national policy guidelines and also FAO advocated standard formats warranting international comparability.

Agriculture Census 1960

The 1960 census of agriculture was taken before independence of the country in 1971 on sampling basis. It covered 5,773 sample mauzas randomly selected in the rural universe for census enumeration. The mauzas were sampled separately for each thana on arranging them into size-classes measured by number of holdings. All crop and livestock farms within sample mauzas were enumerated. Information was collected by interview method. The reference period used was from 1 July 1959 to 30 June 1960. The field enumeration was done by about 1,900 assistant tahsildars during 1 February through 21 March 1960. The census results were published in October 1962.

Agriculture Census 1977

The 1970 series of world census of agriculture was delayed in Bangladesh due to war of liberation. After emergence of the country as a sovereign state in 1971, the programme of carrying out an agriculture census on a sample basis was included in First Five Year Plan (1973-78). However, the programme was finalized after transfer of Agricultural Census Organization from Ministry of Agriculture to newly created BBS under the Statistics Division in 1975.

The census was conducted during April-May 1977 under "Agriculture Census Act". A sample of 14% rural mauzas were selected separately for each thana with probability proportional to number of holdings in a mauza. Urban mauzas were left out. The field enumeration was carried out in all sample mauzas from 14 April to 31 May 1977 except Chittagong Hill Tracts the census coverage of which was done later under special arrangement. Over 5 lakh farms were enumerated and a detailed questionnaire was used for data collection. The reference period was 1 July 1976 to 30 June 1977 for farm crops and inputs. On the other hand, the reference period for livestock & poultry population was the day of visit and that for employment the preceding week. Over 4,260 primary school teachers and 1,988 assistant tahsilders were engaged as enumerators to carry out the field work. They were supervised by technical staff of BBS.

The census preliminary results were published in November 1980 and the final report titled "Report on the Agricultural Census of Bangladesh 1977" was published in June 1981.

Agriculture Census, 1983-1984

The 1983-1984 census of agriculture was conducted on the basis of full count of all holdings including those within urban municipal areas. Information on important basic characteristics of agriculture was collected in full count and supplemented with detailed information collected from a sample of holdings. As per plan of operation, the census was carried out over a period of two consecutive years in such a way that about half of the country was covered in 1983 and the remaining half in 1984. A probability sample of 2,138 unions was selected for the first year and 2,271 unions for the second year. The urban municipal areas together with institutional holdings therein were covered in 1984. The average period of field enumeration was 20 days both in 1983 and 1984 while the municipal enumeration in 1984 took 10 days. Census of institutional holdings was carried out through mail. Immediately after completion of field work post enumeration check (PEC) was conducted by an independent group of technical staff of BBS to verify quality and coverage of census operations. PEC findings showed undercoverage of farm holdings and operated area by 2.5 percent and 2.6 percent respectively. The undercoverage of farm holdings was predominant in small holdings. In contrast, the operated area undercoverage was high in large holdings.

For the census, the questionnaire used was designed the first time in optical mark reading (OMR) format to facilitate quicker data entry and save time.

Agriculture Census 1996

The 1996 agriculture census initially intended to do full count of all rural and urban holdings and collect information on basic characteristics of agriculture. It also intended to conduct a sample survey of farm holdings of both rural and urban areas for collecting detailed data on agriculture activities. The plan was to cover rural universe first and then urban localities by adopting a separate questionnaire. Census of institutional holdings such as tea gardens, dairy farms, seed multiplication farms, and others was decided to be carried out through mail. But due to devastating floods of September-November 1998, the census operation could not be undertaken in urban localities after its completion in all rural areas during the period.

Field enumeration was carried out from 25 December 1996 to 25 January 1997. The reference period for crops was the calendar year 1996.

A post enumeration check (PEC) survey was carried out for the census. For this purpose, 300 PSUs were selected at first stage and 20 farm holdings at second stage by adopting systematic sampling principle. The findings of the PEC showed about 5 percent undercoverage of farm holdings.

Scope, Objectives, and Methodology

This section expounds scope, objectives, and methodology of agriculture census 2008. Though this census was the 4th in the series of such undertaking in the country, yet it was the first of its kind in the sense that all dwelling households both in rural and urban areas were canvassed simultaneously using the same questionnaire.

Scope and Coverage

Agriculture census 2008 was a household based country-wide venture. As in all previous agriculture censuses, the target population was all dwelling households of the country. The census programme was a complete count of all agriculture holdings managed by dwelling households. An agricultural holding was defined as being a production unit having a single management both technical and economical and engaged in agriculture activities. The scope of this census included all agriculture holdings held and operated by dwelling households at the time of census taking. Thus, the agriculture holdings managed under other than dwelling households were excluded.

It is to be noted that the physical area covered under rural domain (non-municipal areas) was different in the censuses. In 1983 - 1984 census there were 79 municipalities. In 1996 the number increased to 147 besides extensions of boundaries of some previous municipalities. In 2008 the urban domain spread over 6 metropolitan cities at division headquarters and 58 municipalities located at district headquarters.

Objectives

The broad objective of the census was to determine structure and operational characteristics of agriculture holdings managed by dwelling households. The specific objectives were to determine:

- I. number of agriculture holdings, area of holdings, average size of holding, tenure, equipment, and farming system
- II. number and distribution of agriculture households
- III. agriculture employment
- IV. number of agriculture wage labour by gender
- V. irrigated area under crops
- VI. stock of livestock and poultry
- VII. agriculture loan
- VIII. agriculture implements

In addition, the specific objective was also to use all census bench-mark data as basis for improving current crop and livestock statistics as well as for formulating and implementing various policies and programmes of agriculture development.

Perceptions

The perceptions made for the census was to allow :

- I. knowing nature and performance of agriculture sector

- II. monitoring achievements of millennium development goals (MDG) including poverty alleviation performance and food security progress
- III. improving current crop and livestock statistics
- IV. assisting policy-makers and planners in providing more pragmatic guidelines that would secure a much better living and welfare for people
- V. making it possible to measure the advancement brought about during intervening period of the censuses 1996 and 2008.

Methodology

The census was carried out in accordance with policy recommendations of NSC and broad guidelines of FAO to maintain international comparability. The full-count of all households both in rural and urban areas was adopted for the census. A short standardized questionnaire containing all basic agriculture- items classifications was used for data collection. Field enumeration was done during **11 through 25 May 2008**.

A sample census was also conducted. A long questionnaire devised to obtain much detailed data on agriculture was adopted in sample survey enumeration which was completed over the period from **15 November to 4 December 2008**.

Survey Instruments

- (a) **Questionnaire:** Both full-count and sample operation questionnaires were pre-tested at the field level before accepting their final formats. The results of pre-test were analysed for finalizing the questionnaires under guidance of a technical committee.
- (b) **Training & field manuals:** A comprehensive verbatim training manual and also a field manual were developed for use by enumerators and supervisors. The manuals explained all concepts, definitions, and classifications used in the census in much detail and also spelt out duties and responsibilities to be performed by supervisors and enumerators.

Data Collection

Data collection at field level was the most important part of the census; because quality data collection determined success of the census. The following methods and techniques were adhered to for quality data collection at field level:

- local educated unemployed youths were hired for collecting data at field level. They were imparted intensive trainings explaining all details about goals and objectives of the census and also about methodology and questionnaires being adopted for the census
- senior officials from BBS were deployed to supervise data collection
- enumerators interviewed heads of households in almost all cases ; but for very few cases in absence of the head, next knowledgeable person was interviewed.

Post Enumeration Check (PEC)

Upon completion of field work of full count census, a post enumeration check (PEC) was done in order to assess the census data quality. The PEC findings are available in a report published separately.

Pre-Census Operations

Zonal Operations

For the census taking, the entire country was divided into 1,978 zones. For each zone, a zonal officer was appointed from among the manpower of BBS. On average, a zone consisted of about 78 EAs. The zonal officers carried out various functions before doing the actual data collection work. These were:

- i. forming and demarcating zones and enumeration areas (EAs)
- ii. preparation of EA sketch maps
- iii. selecting and making enumerator and supervisor lists
- iv. selecting training centers for imparting trainings to enumerators and supervisors
- v. updating lists of restricted areas, special areas, and VIPs
- vi. contacting local administrative authorities
- vii. making arrangement for safe keeping of census materials
- viii. preparing lists of bank branches for disbursing honoraria
- ix. forming census committees at union, upazila/thana, and district/zila levels.

Due to devastating floods in early 2007, the first zonal operation was somewhat delayed but could be completed during the year in two phases: (i) 23 July-19 August, and (ii) 19 October- 15 November. The second zonal operation was executed also in the same year from 9-18 December. The zonal officers did the above tasks under supervision of 534 upazila/thana census coordinators (UCC/TCC), 69 district census coordinators (DCC), 21 region census coordinators (RCC), and 8 division census coordinators (Div.CC). All these coordinators were BBS officers & staff. The UCCs were Upazila Statistical Officers, DCCs Statistical Officers, RCCs Deputy Directors, and Div.CCs Joint Directors and Directors.

Formation of Census Committees

For effective supervision and control of census work, various committees were formed at different levels. At the national level, a steering committee was formed with Secretary, Statistics Division, as chairman and Deputy Secretary (Dev), Statistics Division, as member-secretary. These committees assisted by some members gave policy guidance to the census programme. A technical committee with Director- General of BBS as chairman, Project Director as member-secretary, and some other experts as members was constituted for deciding finalizations of census methodologies, questionnaires, training & field manuals, and all other census processes. Also, census committees at district/zila, upazila/thana, and union levels were formed to oversee field control and coordination of various census operations as well as render administrative support including publicity. The Deputy Commissioners (DCs), Upazila Nirbahi Officers (UNOs), and UP Chairmen headed these committees in their respective administrative jurisdictions and RCCs, DCCs & UCC/Zonal Officers acted as member-secretaries.

Publicity

The full-count field operation of census could be satisfactorily completed with spontaneous support and cooperation of people. All possible measures were taken for informing people about objectives of the census in order to motivate them and get their voluntary participation in conduct of the census. The people awareness about of the census programme and its value to them were raised through well planned publicity campaign. All available media services namely radio, television, and newspapers were accessed for nation-wide campaigning. Mike announcements, drum beatings, and personal contacts were resorted to both rural and urban areas. The publicity message conveyed to people clear understandings about (i) census programme, (ii) need for providing correct information to enumerators, (iii) critical role of their cooperation in census work, (iv) maintaining confidentiality of census information, and (v) inevitability of their helpful responses to enumerators and supervisors in attaining success for the census.

Training

A three tier training plan was executed for the census. At first tier RCCs and DCCs were trained by directors, joint directors (JD), and project director (PD) at Dhaka central office. Thereafter, at second tier RCCs and DCCs imparted trainings to zonal officers and UCCs at district/zila headquarters. Then on at third tier zonal officers and UCCs trained supervisors and enumerators at upazila/union training centers.

The training was scheduled for two days with first day devoted to class lessons as recorded in two manuals: (a) verbatim training manual, and (b) field manual. On the other hand, the second day was spent on doing a mock demonstration of actual interviewing and filling out census questionnaire by trainees at field level. The trainings were completed for RCCs and DCCs of all divisions in two groups and for zonal officers and UCCs of districts/zilas together, and for supervisors and enumerators of zones also together as shown below:

<u>Centre</u>	<u>Days</u>	<u>Trainees</u>	<u>Instructors</u>
Dhaka	19-20 April' 08	RCCs and DCCs of : (i) Chittagong, Sylhet, Khulna & Barisal divisions	Directors /PD /JDs
	21-22 April' 08	(ii) Dhaka & Rajshahi divisions	- do-
District HQ	27-28 April' 08	Zonal Officers and UCCs of districts	RCCs & DCCs
Upazila /Union	04-09 May'0 8	Supervisors and Enumerators of zones	Zonal Officers & UCCs

Field Operation Management

Administrative Units:

The administrative units covered in the census were 64 districts/zilas, 534 upazilas/thanas, 7,648 unions/wards, 65,806 mauzas/mahallas, and 153,945 enumeration areas. Their numbers by divisions were as follows:

division	district/zila	upazila/thana	union/ward	mauza/mahalla	enumeration area (EA)
Barisal	6	40	573	3,555	9,438
Chittagong	11	111	1552	9,408	26,817
Dhaka	17	153	2133	19,300	48,412
Khulna	10	64	931	7,724	18,225
Rajshahi	16	128	1928	19,847	41,355
Sylhet	4	38	531	5,972	9,698
Bangladesh	64	534	7648	65,806	153,945

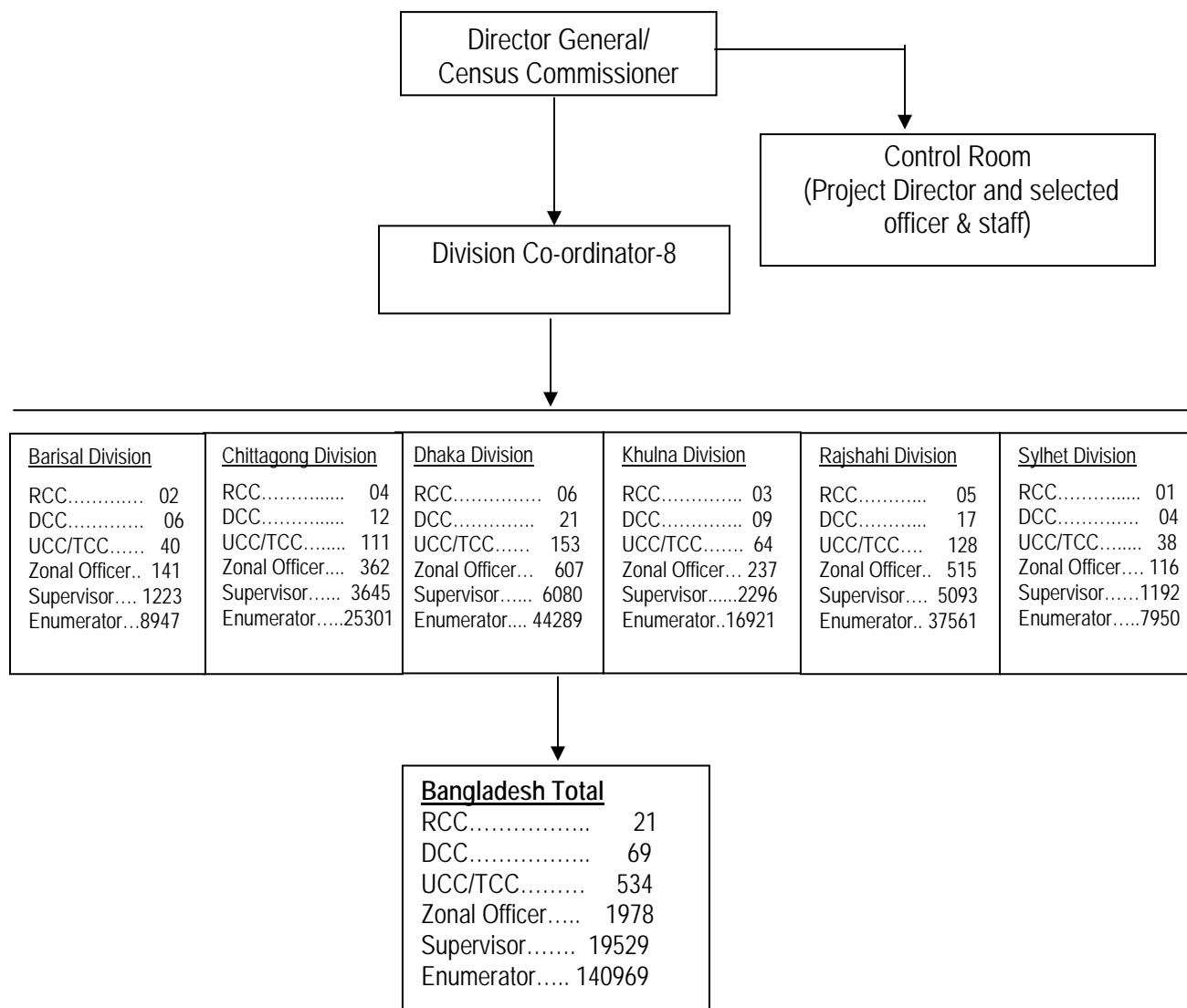
Management:

The census overall supervision, control, and field operation functions were managed on a large manpower base. Almost all BBS officers and also many temporarily recruited personnel worked for the census. The census manpower set-up is shown overleaf.

A census control centre with selected officers and staff worked round the clock during field operations under supervision and control of Project Director. Seven DCCs were kept in reserve and were deputed to areas which called for emergency field-operation support. The Director-General, BBS maintained constant supervisions of all activities of the census and closely controlled and guided them to success.

On completions of field works in 15 days (11-25 May 2008) all filled-out questionnaires along with other materials were received from zonal officers at Dhaka central office. The questionnaires were stored systematically on racks with rack-arrangement made according to geo-codes of administrative units.

Census Management Set-Up



Data Processing

The data processing of the census was originally conceived to be done with help of ICR (intelligent character reader) machine use. The aim was to cut-down substantially the usually long data- entry time of the census. But some practical limitations led the steering committee to recommend abandoning plan of ICR data entry for the census. Therefore, the manual keying of data into micro computers was adapted. Here, the following rigid measures were taken up to expedite error-free manual data entry for the census:

- i. establishment of local network system
- ii. ensuring correctness of data right at the stage of data entry process; this included checks on completeness, possible errors, and consistency
- iii. incentives for data-entry operators and supervisors on the basis of volume of work done
- iv. constant monitoring of progress.

Manual Editing

As soon as the data collection phase was completed, the documents were stored systematically in order of the computer geo-code list to ensure their easy retrieval as and when needed. Systematic storage of documents was a very important step that ensured smooth processing.

An elaborate list of editing checks was developed and the editors were thoroughly trained. For every 10 editors, one supervisor was engaged to ensure accuracy of editing. Also, for strict control of data-edit one supervising officer had overseen work of every two supervisors.

The data entry program was developed in such a way as to reject any record with wrong or inconsistent data. In order to speed-up data entry, it was necessary that the manual edit was comprehensive and correct. However, data entry operators and their supervisors were also trained in manual edit in order to enable them to carry out necessary corrections when needed.

Apart from accuracy of data sets, manual edit ensured completeness of enumeration-books and their geo-code identifications.

Data Entry and Computer Edit

A special data entry program was developed in FoxPro with exhaustive checks of every kind including duplication of records. These checks, although slowed down the speed of data entry operation, ensured accuracy and consistency. As a results, no further edit or imputation was necessary before embarking upon tabulation process. At the end, products of operators were merged together to make a district file. At this stage, it was ensured that the relevant number of records of all EAs were in the file and that no EA was missing. Completeness, accuracy, and consistency were the main elements of computer edit.

Tabulation Plan

For tabulation and presentation of results, an appropriate tabulation plan was developed. The guiding principle of tabulation plan was the decision to make available all information collected in the census. It was also planned to maintain comparability so that all data elements could be comparable with those available in the previous agriculture census reports. This comparison made it possible to measure actual structural changes that took place between the censuses.

Data on areas were collected and entered in acres and decimals. While preparing tabulations through computer, cells relating to areas were rounded to acres. As a consequence, small differences both within and between tables may be observed. The statistics are presented for:

- all holdings
- non-farm holdings having:
 - I. no operated area
 - II. no cultivated area
 - III. cultivated area up to 0.04 acre
- farm holdings with breakup by:
 - small farms of size
 - I. 0.05 to 0.49 acre
 - II. 0.50 to 0.99 acre
 - III. 1.00 to 1.49 acre
 - IV. 1.50 to 2.49 acres
 - medium farms of size 2.50 to 7.49 acres, and
 - large farms of size 7.50 acres and above

In some tables, the medium farms are subdivided into two groups, viz. 2.50 to 4.99 and 5.00 to 7.49 acres.

Part- II

Concepts and Definitions

Concepts and Definitions

The important concepts, terms, and terminology used in the census of agriculture 2008 are defined in this section. For understanding connotations of the census data, these concepts and definitions are presented separately.

Census year and reference period

The census year extends over twelve consecutive months having for different census items the different reference periods or days of data collections. Some items have a year or week reference period. Some others have a specific reference day.

The census year covered twelve months from 1 Baishak to 30 Choitra, 1414 Bangla Shal (BS). This year was the reference period for such census items as operated land use, crops, agriculture employment, livestock & poultry deaths, and agriculture loan. A single reference day was used for items like holdings, farm size, land tenure, farm population, livestock & poultry inventories, and agriculture implements.

The different census items by their reference periods or days are shown below:

item	reference period/day
census year	1 Baishak to 30 Choitra, 1414 Bangla Shal(BS) [<i>14 April 2007 to 13 April 2008</i>]
holdings	day of enumeration
size of farm	day of enumeration
land tenure	day of enumeration
utilization of operated land	census year
crops	census year
farm population	day of enumeration
employment in agriculture related work	census year
livestock & poultry inventories	day of enumeration
livestock & poultry deaths	census year
agriculture loan	census year
agriculture implements	day of enumeration

Urban area

For the census the 6 metropolitan city corporations (Barisal, Chittagong, Dhaka, Khulna, Rajshahi, and Sylhet) and 58 municipalities at 58 district/zila headquarters were considered as urban area.

Rural area

The rest of the country including municipalities at upazila headquarters and other urban areas along with growth centers were treated as rural area.

Enumeration unit

The agriculture holding is commonly considered as being the enumeration unit for agriculture census. An agriculture holding is *a techno-economic unit of agricultural production under a single management, which is generally operated by a household or jointly by two or more households*. In some limited cases, this economic unit is operated by institutions or establishments or government and semi-government organizations or other agencies or by a judicial person. In almost all cases, households and agriculture holdings have a one to one correspondence. The households operating agricultural land and raising livestock & poultry can be regarded definitive equivalents of agriculture holdings. Reliable data regarding households, agriculture labour households, and households taking loan can only be obtained if households are treated as being enumeration units. In such context, it was decided to take household as enumeration unit for the census. Therefore, as in all previous agriculture censuses an agriculture holding and a household may be considered synonymous.

Mauza

Mauza is the lowest administrative unit having a separate jurisdiction list number (J.L. No) in revenue records. Every mauza has its well-demarcated cadastral map. Mauza should be distinguished from local village since a mauza may consist of one or more villages.

Enumeration area (EA)

An EA is the smallest area unit specified for census enumeration and assigned to an enumerator. A map of this area unit was prepared showing its boundaries and location. An EA may consist of one or a part of a mauza.

Household

A household means *a group of persons normally living together and eating in one mess (i.e. with common arrangement of cooking) with their dependants, relatives, servants, and other members*. A household may be a one-person household or may have more persons. In case of a household with a group of persons living together and taking meals from the same kitchen generally maintain a family or family like relation. A household is usually described as 'khana'. In some instances, there may be more than one household in a single house or in one dwelling arrangement. Similarly, a household may have more than one house or structure or shed.

The household is to be distinguished from family which comprises members having blood relationship. Members of a family may live in different places but members of a household must live in the same place and share the same kitchen.

Agriculture holding

An agriculture holding is *a techno-economic unit of agricultural production under single management comprising all livestock kept and all land used wholly or partly for agricultural production purposes without regard to title, legal form, or size*. Single management may be exercised by either an individual holder or jointly by two or more individuals or holders, or by a judicial person such as a corporation,

cooperative, or government agency. A holding may consist of one or more parcels (fragments of land) located in one or more areas or mauzas or in more than one administrative unit or division provided that all separate parcels of fragments form parts of same technical unit under operational control of same management.

The definition covers practically all holdings/households engaged in agricultural production of both crops and livestock. Some agriculture holdings may have no significant agricultural land, e.g. holdings keeping livestock, poultry, and hatcheries for which land is not an indispensable input for production. *In the context of this report, a holding and a household may be treated synonymous.*

Farm holding

A farm holding is defined as being an agricultural production unit having cultivated land equal to or more than 0.05 acre. Farm holdings are classified into following three broad groups:

- (a) **small:** Farm holdings having minimum cultivated land 0.05 acre but operated land more than this minimum but upto 2.49 acres.
- (b) **medium:** Farm holdings having operated land in between 2.50 to 7.49 acres
- (c) **large:** Farm holdings having operated land 7.50 acres and above.

Small cultivated land 0.04 acre or less is generally used for kitchen garden growing mainly vegetables. Often seeds of white gourd, water gourd, pumpkin, and other strains are sown on households; but these creepers spread out around house roofs and other structures. As such, the minimum cultivated land considered for qualifying to be a farm holding is 0.05 acre.

Non-farm holdings

A non-farm holding is defined as being the one which has neither cultivated or operated land or has cultivated land less than 0.05 acre.

Holder

The holder is *member of household who exercises management control over the operations of agriculture holding and takes major decisions regarding utilization of available resources*. He/she has technical and economic responsibility for the holding which he/she may operate directly as owner or tenant or through a manager (hired person) to whom he/she has delegated the responsibility for day to day management of work.

Tenancy

Owner holdings are those having and operating their owned land and who may or may not be leasing out land.

Tenant holdings are those having no owned land but operating land taken from others on share cropping basis or on other terms.

Owner-cum-tenant holdings are those having owned land and who may or may not be leasing out their own land to others and who may be taking land from others on share cropping basis or on other terms.

Agriculture work

Agriculture work signifies *all activities of holder and his/her labour force doing planning, management, and operation of a holding*. It includes land preparation, sowing, weeding, harvesting, feeding and tending livestock & poultry, kitchen gardening, supervising agricultural workers, keeping farm records & accounts, preparing agriculture products for marketing (including packaging), repairing farm equipment, constructing farm buildings & fences, and engaging in land reclamation and improvement and other related activities. It excludes home and other family domestic chores.

Agriculture labour household

Agriculture labour household is defined to be the one whose *major source of income during the preceding year was obtained by working as agriculture labour*. Agriculture labour connotes paying wage either in cash or kind or both for doing agriculture works *on land operated by other holders*.

Owned land

Owned land means *the land owned by holder including members of his/her family having a title to the land with right to determine nature and extent of its use and to transfer the same*. There might be some land not legally owned but over which the holder or any member of his/her family has owner-like possession. This type of land has also been included in owned land category and, as such, can be operated by him/her like owned land even though the holder does not possess title of ownership. Generally the 'Khas' land lease falls under this category.

Land given to others

This is *holder's owned land which is given out to some other persons /body on rent or on lease usually for a limited period of time on payment either in cash or kind or both*. The uses of such land vary from place to place.

Land taken from others

The land taken from others on payment either in cash or kind or both has been broadly divided into two groups:

- a) *Land lease on share- cropping (barga): This is land taken lease from other farmer (s) or individual (s), or from any organization on share-cropping basis.*
- b) *Land lease on other terms: This is land taken lease on such terms as one-time-payment, usufructuary mortgage, and similar contracts.*

Total operated area

Total operated area equals *area owned plus area taken from others minus owned area given to others*. Operated area *also includes uncultivated land including homestead*.

Homestead area

This includes land under household residence with all its structures, courtyard, and entrance & exit passage. The land adjacent to residence and used for temporary or perennial crops, ponds & tanks, and compact plantation is excluded from homestead area.

Area under bamboo clump

This is *area wherein bamboo plants have grown in clumps.*

Area under pond

The pond *area remains under water almost through out the year.* Normally, households use pond water for various domestic and sometimes agriculture purposes. Ponds are also generally used for fish culture.

In the census the pond area data were collected separately for both single ownership and joint ownership of households.

Area under temporary crops

It is the land area planted to crops having growing cycle or length of life less than one year. These are the temporary crops such as paddy, wheat, jute, cotton, tobacco, sugarcane, pulses, oil seeds, potato, vegetables, and other seasonal crops. A list of temporary crops for which data were collected separately was given in back page of "Tally Sheet". The minimum area recorded for a temporary crop was 0.01 acre. Area under temporary crops and temporary-crops net area are equivalents.

Area under permanent crops

It is the land area planted to *crops which remain standing for a long period of time and do not need to be replanted after a seasonal harvest. Mango, jackfruit, coconut, guava, lemon, and other fruit varieties are all permanent crops.*

They are of two types:

(a) compact plantation

Some permanent crops have compact plantations in gardens wherein they are *planted in planned ways and in regular pattern. The area measures of them are quite easier.*

(b) scattered plantation

They are permanent crops which have plantation *patterns so scattered that it is not feasible within short time limits to measure and record areas occupied by them. As such, these scattered plants have not been accounted for in the census.*

Permanent crops have been classified into 3 groups: (1) tree varieties, (2) flowers cultivated for commercial purpose, and (3) nurseries of trees and flowers.

Current fallow

It is land brought into cultivation but left out uncultivated in census year for fertility regaining and improvement or for other reasons.

Net cultivated area

This is land *area actually cropped during the census year regardless of number of crops grown plus current fallow. It includes areas under temporary and permanent crops and also current fallow.*

Permanent fallow

It is land not available for cultivation due to coming into residence and commercial & other uses. Play ground, graveyard, wild shrubs and jungles, marshy land, and the like fall in this category.

Area under pisciculture

This is area of open water bodies other than ponds which is used for pisciculture either exclusively or in combination with other practices. Fishing 'ghers' come under this category.

Net irrigated area

This is area of total land brought under irrigation coverage *for growing crops with irrigations done through mechanical or manual means.* Irrigated area classifications fall into two categories: (1) surface water irrigation with main water sources being rivers, canals, beels, ponds, and other water bodies; and (2) underground water irrigation with water lifted by shallow tube-wells, deep tube-wells, and country traditional devices. The irrigation equipments are run by electricity, diesel or petrol, or manual labour.

Cattle and Buffalo

Cattle and buffalo heads owned by households on day of enumeration were counted.

Goats and Sheep

Goats and sheep owned by households on day of enumeration were counted.

Fowls, Ducks, and Pigeons

Fowls, ducks, and pigeons owned by households on day of enumeration were counted.

Cross bred

Cattle, buffaloes, goats, sheep, fowls, ducks, and pigeons reported belonging to 'cross bred' or 'improved variety' have been counted separately. The information given by respondents was recorded in the census.

Loan

Loans taken in census year for agricultural purposes from any banks, cooperatives, NGOs, and other institutions as well as from non-institutional sources like friends, relatives, money lenders, and others have been considered in the census.

Temporary-crops gross area

Areas aggregated for all temporary crops grown in the census year have made **temporary-crops gross area** greater than **temporary-crops net area** since the latter has within it the same land cropped more than once in different seasons of a year.

Intensity of cropping

It is percentage of temporary-crops gross area in comparison with temporary-crops net area. It is expressed as follows:

$$\text{Intensity of cropping} = \frac{\text{Temporary - crops gross area}}{\text{Temporary - crops net area}} \times 100$$

Cereals

Main cereals are rice and then wheat. Other cereals are jab, barley, cheena, maize, kaun, bajra, and joar.

Pulses

Main and common pulses are gram, mung, lentil, arhar, gari kalai, khesari, and pea.

Oil seeds

Main oil seeds are *rape and mustard, sesamum, linseed, groundnut, soybean, sunflower, and castor*.

Vegetables

Farmers grow both summer and winter vegetables. Main vegetables are potato, brinjal, raddish, arum, lady's finger, cauliflower, cabbage, bean, tomato, patal, gourd, cucumber, pumpkin, olkopi, dhundal, barbati, khirai, chichinga, carrot, kakrol, and sak.

Cash crop

Main cash crops are jute, mesta, sunhemp, cotton, sugarcane, and tobacco.

Spices

The main spices *include turmeric, ginger, chillies, onion, garlic, corriander, black cumin, and ani seed*.

Fodder

It includes sorghum, guine-grass, and other grasses.

Fuel crops

Dhaincha and other smaller plants used as cooking-fuel are included in the group.

Seed-beds

These are plots of land wherein seedlings/saplings are raised for retransplanting in growing a crop.