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DEMOGRAPHIC SURVEY OF GUYANA (GUYREDEM)

UNITED NATIONS
Latin American Demographic Centre (CELADE)
Economic Commission for Latin America
and the Caribbean (ECLAC)

Statistical Bureau
Georgetown
Guyana

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LIST OF ABBREVIATIONS

CELADE	United Nations Latin American Demographic Centre
CIDA	Canadian International Development Agency
DIEC	Department of International Economic Co-operation (Guyana)
ECLAC	United Nations Economic Commission for Latin America and the Caribbean
ED	Enumeration District
GUYMINE	Guyana Mining Enterprises
GUYREDEM	Retrospective Demographic Survey of Guyana
NDMA	National Data Management Agency (Guyana)
REDATAM	REtrieval of DATA for small areas using Micro-computers
SPC	State Planning Commission (Guyana)
UNDP	United Nations Development Programme
UNFPA	United Nations Fund for Population Activities

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INTRODUCTION

1. Work on the Retrospective Demographic Survey of Guyana (GUYREDEM) commenced in July 1985, with the aim of augmenting knowledge and providing up-to-date information on the current and prospective socio-demographic characteristics of the population of Guyana. These included estimates of fertility, mortality and both internal and international migration.

2. Guyana, like many Commonwealth countries, has had a long and unbroken tradition of decennial population censuses, the last of which was conducted in 1980. Tables generated from this source were published in 1985. Though the census provides fundamental and very important demographic and non-demographic data, there are well-known limitations to the amount and type of information which can be collected and investigated via this medium. As a consequence, it is often necessary and the usual practice to supplement census data with information from other sources. These include single- and multi-purpose surveys and the collection, processing and publication of information on vital events and migrations. Recent Guyanese experience has not seen much of either of these data collection activities. The last major national demographic survey in Guyana was the Guyana Fertility Survey of 1974/75, conducted under the auspices of the World Fertility Survey programme. In fact, if the 1980 Census is excluded, only one (of three) other national surveys - the Rural Farm Household Survey (RFHS) of 1978 - was successfully conducted by the Guyana Statistical Bureau in the last decade and a half. Though there were labour force surveys in 1976 and 1977, only the RFHS resulted in the publication of data.

3. The vital registration process has also suffered from ineffectual activity. For a number of reasons including staff shortages, data processing constraints and costs, vital statistics information (though collected), has not been published and indeed has not been readily available for the last decade. Annual data on births and deaths are not available after 1976 and 1979 respectively. Migration tabulations cease at 1976 and the estimates available after that date are limited in coverage of issues and not too reliable.

4. Although the Statistical Bureau continues to receive information on vital statistics collected by most, though by no means all registrars in the country, there has not been much action towards evaluating completeness of the vital registration system and the accuracy of resulting statistical information.

Even when data are available, little is known about their reliability. The result is that unlike a number of its Commonwealth Caribbean counterparts, Guyana was severely constrained in movement towards upgrading its demographic data base, revitalising demographic studies, and integrating demographic information into decision-making and socio-economic development planning.

5. As is true for many developing countries with constant and rapid population changes, the problem facing planners, researchers and other analysts of Guyana's demographic reality lay in both a deficiency and the defectiveness of its demographic data base. To be devised was a strategy and mechanism for providing much-needed information on a variety of demographic measures rapidly and at low cost - rapidly, in order to circumvent the traditional problems associated with delays which make much survey data (demographic and otherwise) suffer the fate of being categorised as archival; at low cost, because of the financial stringencies facing so many data collecting agencies in developing countries.

6. GUYREDEM was intended to address these issues and rectify some of the problems. With a rather modest budget (see section V), the survey gathered some previously unavailable socio-demographic and other data (e.g. fertility and mortality data by region) from direct interviews of just over 8,500 households.

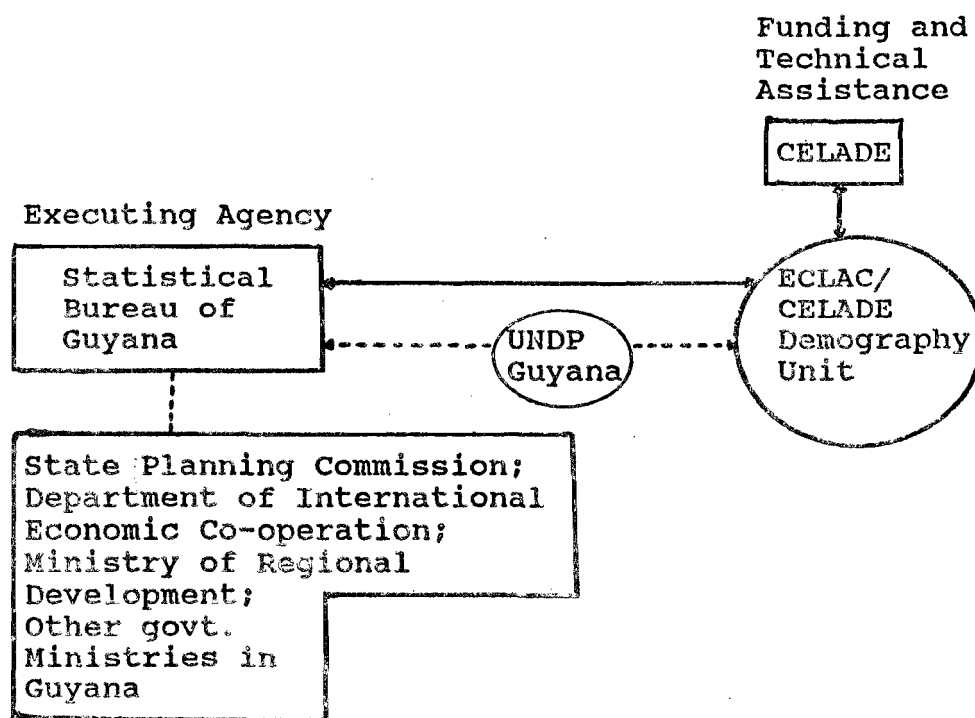
7. A single round enumeration procedure was implemented, with coverage of households in all 10 administrative regions of Guyana. The approach at the sample design stage was to select adequate numbers from each region for the generation of meaningful regional data. In a few cases, population size, settlement patterns, transport difficulties and high implementation costs militated against the coverage which was projected as being necessary for reliable demographic estimates for the respective regions. Nonetheless, on the basis of their similar characteristics, these regions can be grouped to produce data sets of reasonable size, as is discussed in Section VI.

8. Household interviews commenced at the end of August 1986 and concluded 5 months later. Information was collected on all persons who were considered usual members of the households visited. The questionnaire (see section IX) utilised some traditional census measures, as well as indirect and retrospective approaches to estimate the components of population change. The use of census concepts preserved some measure of historical continuity in the population information, permitting a

mid-decade comparison with that obtained in the 1980 Census and facilitating the identification of trends.

9. The executing agency for GUYREDEM was the Statistical Bureau of Guyana, the legal authority for collection and dissemination of demographic information in Guyana. During all phases of the project, the Bureau worked in very close collaboration with the United Nations Latin American Demographic Centre (CELADE); see Figure 1. Funding was provided by CELADE through a grant received from the Canadian International Development Agency (CIDA) to further population activities and strengthen demographic capabilities in Latin America and the Caribbean. Counterpart contributions were made by the government of Guyana. In addition, some financial assistance to cover the technical support work of CELADE staff on the project was provided by the United Nations Fund for Population Activities (UNFPA). Invaluable support and liaison in the implementation and administration of GUYREDEM was provided by the United Nations Development Programme (UNDP) in Guyana and the Guyana government's Department of International Economic Co-operation (DIEC).

Figure 1. Principal Agencies Involved in Planning/Conducting the Retrospective Demographic Survey of Guyana



10. Technical advice, assistance and professional support throughout GUYREDEM were provided by the ECLAC/CELADE Demography Unit at the United Nations Economic Commission for Latin America and the Caribbean (ECLAC), sub-regional headquarters for the Caribbean in Trinidad and Tobago, and from CELADE headquarters in Chile. Nonetheless, a large number of decisions regarding the execution of the project and operationalisation of activities were made by the Statistical Bureau. The few not made directly by the Bureau were made in close consultation and with its blessings. This modus operandi generated significant responsibilities for the executing agency and its staff. The result was a survey which provided opportunities for imparting a wealth of experience and knowledge to the Guyanese who participated. It should also prove beneficial to those persons (particularly analysts in Guyana) who will make use of data from GUYREDEM to participate in a proposed phase of in-depth analysis, where opportunities will exist for the rapid production of tables to satisfy particular research needs not covered in the preliminary phases.

11. The shortage of both skilled and professional staff at the Statistical Bureau posed serious obstacles and imposed considerable constraints on the survey administration. It is also regrettable that more persons could not have benefited from involvement in the project. Notwithstanding the human resource constraints, it was possible to plan and implement activities, as reflected in the completion of fieldwork, data entry and processing, and release of tables without inordinate delays.

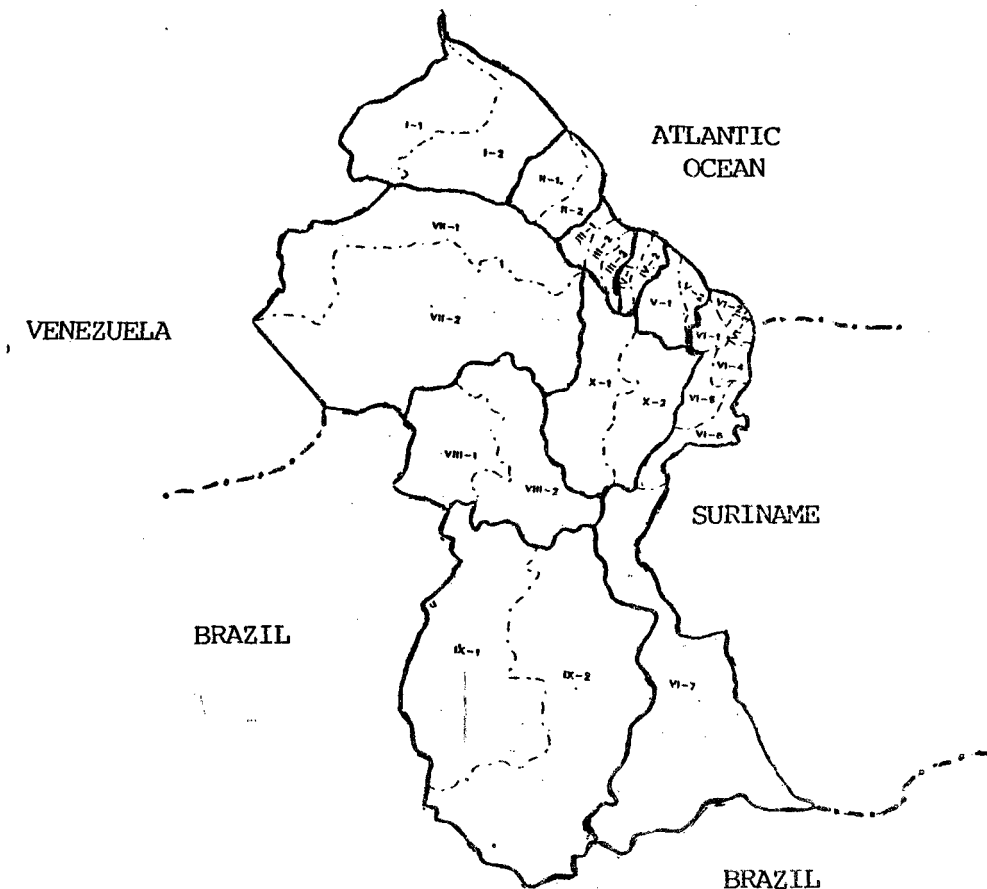
12. This report details the approaches and experiences of GUYREDEM, as an integral component of the survey process and as a record of project activities. Its preparation was the responsibility of the Project Co-ordinator, but reflects the collaboration and input from the Survey National Director, Statistical Bureau and CELADE staff in the positive fashion which was characteristic of GUYREDEM and contributed to its success to date. A companion report presents and discusses some of the preliminary results. Subsequent in-depth analyses of fertility, mortality and migration are foreseen as a means of making further use of the data from GUYREDEM and other sources.

I. BRIEF BACKGROUND ON GUYANA

Guyana has traditionally been divided into three counties- Essequibo, Demerara and Berbice - (after the major river in each) and more recently into ten administrative Regions. These are:

1. Barima - Waini
2. Pomeroon - Supenaam
3. Essequibo Islands - West Demerara
4. Demerara - Mahaica
5. Mahaica - Berbice
6. East Berbice - Corentyne
7. Cuyuni - Mazaruni
8. Potaro - Siparuni
9. Upper Takutu - Upper Essequibo
10. Upper Demerara - Berbice

Figure 2. Administrative Map of Guyana Showing the Country's Ten Regions and Major Sub-regions



Physical/Economic Geography

13. In addition to the three counties and ten administrative regions identified above, Guyana may be divided into four natural or physical zones: (1) the Coastal Plain, (2) the Hilly Sand and Clay Belt, (3) the Forested Highlands, and (4) the Interior Savannahs.

14. The Coastal Plain (approximately 280 miles) long and varying in width between 10 and 40 miles, borders the Atlantic Ocean and covers much of Regions 1, 2, 3, 4, 5 and 6. It is the zone of settlement and agricultural development. However, for large segments of Regions 1 and 2, there is dense mixed forest which remains largely uninhabited.

15. The Hilly Sand and Clay Belt lies immediately south of the Coastal Plain and East of the Pomeroon River. It is partially forested and accounts for much of Region 10 - with its bauxite mining activity - and parts of Regions 2, 4, 5 and 6.

16. The Forested Highlands, covering mainly Regions 7 and 8, are the main areas of forestry and mining activity for precious metals. Settlement in these regions is mainly on the banks of rivers, or where economic activities are undertaken.

17. There are two noteworthy savannah areas in Guyana. The smaller Intermediate Savannahs lie just south of the Coastal Plain and east of the Demerara River, covering portions of Regions 4, 5 and 6 and a small part of Region 10. The larger Rupununi Savannahs, of some 5 000 sq. mls, lie in the south of the country and cover Region 9. They are split almost equally into the Northern and Southern Savannahs by the Kanuku Mountains. There is some subsistence agriculture and much cattle ranching in these savannah areas.

Population Density and Distribution

18. Recent census figures indicate that the country's population density is low - 9 persons per sq. ml. This national average, however, masks significant regional variations. Almost 90% of Guyana's population is settled in the narrow Coastal Plain. A conservative estimate of population density on this coastal strip is some 750 persons per sq. ml. Most of the rest of the country is uninhabited and undeveloped and would average slightly in excess of 1 person per sq. ml. Population in the non-coastal zone is not evenly distributed but is clustered around a few nodes of mining, logging, ranching and subsistence agricultural activity.

Many of the larger interior settlements function as administrative centres for other populated areas in their proximity or scattered across the Regions.

19. Only five areas in Guyana are classified as urban-Georgetown, Linden, New Amsterdam, Corriverton and Rose Hall. The bulk of the population resides in rural areas and mainly in coastal villages or on land development schemes. Only Linden is not on the coast; however, it is not far removed therefrom.

Population Growth and Structure

20. Two distinct phases may be identified in Guyana's population growth since World War II. The first - covering the 1946-1970 period - was one of very high growth, with the population increasing from 376 thousand to 702 thousand. This high growth period, with an annual rate of increase averaging 2.7%, contrasts with the post-1970 years, which saw very low growth - the lowest for any intercensal period since the War - and a rate of increase averaging 0.8% per annum. While the growth over the 1946-70 period was mainly due to natural increase (particularly during the mid-fifties and early sixties), the low growth since 1970 is attributable to both low natural increase and emigration.

21. The two contrasting growth patterns have led to significant changes in the age structure of the population. In 1946, for example, 38% of the population were under the age of 15. At the 1970 Census, this figure had risen to 47%, but by 1980 had declined to 40 percent. Though the population is still very clearly a young one, at the other end of the age spectrum, recent censuses have recorded the population 65 and over as increasing slightly as a percentage of the total - from 3.3% in 1960, through 3.6% in 1970 to 4.0% by 1980.

22. As a percentage of the total female population, females in the reproductive ages (15-49) have declined from 49% at the 1946 Census, through 43% in 1960, 42% in 1970, but in 1980 showed a reversal to reach 48 percent. Recent data on crude birth rates, crude death rates and net migrations are unavailable.

II. OBJECTIVES OF GUYREDEM

23. Taking into account the nature and (un)availability of vital registration and migration data and the fact that the most recent population data base was already five years old and questioned in some circles, the broad objective of GUYREDEM was collection of much-needed demographic data on which decision-making and administration could be based. Associated with this was the goal of analysing the data and facilitating their incorporation in development planning. The identified data needs were for estimates of:

- (a) National and regional population size and characteristics;
- (b) fertility levels for all women and specific sub-groups;
- (c) mortality levels at the national and regional levels and for specific sub-groups;
- (d) intra-regional migration rates;
- (e) levels and nature of international migration.

24. The above goals were addressed not only in the context of rectifying data deficiencies, but also of facilitating the testing of hypotheses and of investigating some of the relationships between socio-economic and demographic variables. The GUYREDEM questionnaire therefore included questions which permit analysis of the components of population change and their interaction with such socio-cultural and socio-economic variables as race, education, occupation and economic activity, in addition to age, sex, family size and household composition.

25. CELADE also worked closely with the Statistical Bureau to address a non-demographic but very important objective - that of strengthening the Bureau's capabilities and developing a group of local personnel with skills and experiences to conduct future household surveys and undertake demographic and non-demographic analysis and evaluation. In accordance with the Guyana government's philosophical thrust towards self-reliance in all spheres of socio-economic life in the country, there was always a clear and distinct strategy for national counterparts to be very much involved and to play major roles in all phases of GUYREDEM. This included conceptualisation, stretched through questionnaire design and sample selection; fieldwork and data processing, and

continues to analysis and report writing. In this connection, a member of the Statistical Bureau staff visited both Port-of-Spain and Santiago to work closely with CELADE staff there. The efforts at detail in this report may also be viewed as provision of a record in the direction of institution building and strengthening capabilities.

III. PLANNING GUYREDEM

Scheduling of Activities:

26. The first schedule of activities was prepared by the ECLAC/CELADE Demography Unit in July 1985. It covered the following broad phases of work on GUYREDEM; see Appendix A1.

- (a) Pre-project phase;
- (b) preparatory phase;
- (c) pilot project;
- (d) fieldwork and execution of the full national survey;
- (e) data processing and evaluation;
- (f) data analysis;
- (g) reports, seminars and workshops.

Some of these are dealt with immediately below; the others are discussed later in the report.

27. Four major points were considered in the preparation of the initial schedule. These were:

- (a) Project budget and the need for hiring and training field staff;
- (b) environmental conditions affecting the work of the field staff;
- (c) data processing requirements;
- (d) defining and timing the technical assistance input from CELADE.

28. The initial schedule projected all major activities, with the exception of in-depth research, for completion by the end of 1986. Subsequent consultations between the Project Co-ordinator - a member of the ECLAC/CELADE Demography Unit - and the executing agency resulted in a modification of the schedule, placing the completion date in early 1987 (Appendix A2), and providing details of activities in the various phases. Despite unforeseen and extraneously generated problems, particularly in the fieldwork and data processing phases, all major activities were completed only slightly beyond this revised schedule. This was due in no minor way to flexibility in scheduling, building in of lead-times for the various phases and rapid attention to problems which threatened to undermine the project.

Pre-project phase:

29. This may also be regarded as an exploratory phase. It saw discussions between the ECLAC/CELADE Demography Unit and a number of government bodies in Guyana, including the Statistical Bureau, State Planning Commission (SPC) and DIEC, regarding the rationale, feasibility and general logistics of GUYREDEM. Background documents were also obtained, studied and shared between ECLAC/CELADE and the Statistical Bureau.

30. Following one exploratory meeting in early 1985 between ECLAC/CELADE staff and the Statistical Bureau of Guyana to discuss some of the background for a retrospective demographic enquiry, verbal approval for the project was given to the Chief Statistician of Guyana by the Minister responsible for the Bureau. This decision, approving in principle the conduct of GUYREDEM, was communicated to ECLAC in May 1985 by the Chief Statistician. As he noted in his correspondence, there was an "urgent need for this type of survey data", as well as "the need for close and constant liaison between [ECLAC/CELADE] and the Statistical Bureau throughout the exercise", so that maximum benefit could be derived from the project in both the short and long terms.

31. In August 1985, a follow-up mission to Guyana was undertaken by the Project Co-ordinator to obtain formal approval for ECLAC/CELADE to assist in conducting the survey, clarify responsibilities of the Statistical Bureau, CELADE and ECLAC, determine resource requirements, and continue consultative pre-project activities. Many of Guyana's senior government officials were unavailable because of the death of the country's President while the mission was underway. However, the only objective not accomplished was that of obtaining formal, written approval for ECLAC/CELADE's participation.

32. Over the August-September 1985 period, a Survey National Director (a member of the Statistical Bureau staff) was identified by the Bureau and planning for GUYREDEM continued through informal consultations between him and the Project Coordinator. As a result of these contacts, by September when formal approval was communicated to ECLAC by the Deputy Prime Minister (Planning and Development) of Guyana, a number of approaches to effective project management had already been conceptualised and strategies for their accomplishment shaped. These included a project timetable and programming of activities conceived with flexibility in mind, a decision on staff recruitment, evaluating the option of acquiring micro-computers for the Statistical Bureau to capture and process the data, reviewing and modifying the project budget, determining the most effective process for transferring and disbursing project funds, and obtaining administrative support of the UNDP in Guyana.

Preparatory Phase:

33. The next several months were spent reviewing information and capabilities and undertaking detailed planning for conduct of the survey. In shaping GUYREDEM, every action was taken to ensure that it would collect socio-demographic information deemed critical and of interest to Guyanese planners and the national administration of Guyana, as expressed through the executing agency and the SPC. For example, at the request of the latter, an international migration module was included in the questionnaire in an effort to give an indication of the volume and some of the major socio-economic characteristics of recent emigrants. Similarly, there was an expressed need for data to be collected and captured at the regional level and to cover all 10 regions of Guyana and the Amerindian population as a distinct subset, despite their relative inaccessibility. All these goals were satisfactorily addressed, even though they required seeking out particular avenues to ensure that neither costs nor time would escalate in such a way as to jeopardise the efficient conduct and completion of the survey.

IV. CELADE/STATISTICAL BUREAU CONTACTS

34. Between August 1985 and July 1987, CELADE personnel undertook a total of 20 person missions to Guyana from the ECLAC/CELADE Demography Unit or from CELADE headquarters. These missions were all for the purpose of working along with Statistical Bureau and SPC staff on various aspects of GUYREDEM. The Project Co-ordinator represented the ECLAC/CELADE Demography Unit on all project missions, whether alone or accompanied by CELADE headquarters staff. In addition, the Survey National Director made two visits to both Port-of-Spain and Santiago for work with CELADE staff there.

35. Mission reports were prepared after all visits to Guyana by CELADE staff members and these served to inform the ECLAC/CELADE hierarchy on progress in conducting the various phases of the project. Periodic status reports were also prepared by the Project Co-ordinator for the same purpose. The Survey National Director likewise, ensured that the Chief Statistician was continually briefed about on-going work in connection with GUYREDEM and this information was shared with the SPC.

36. Regular telephone contact between the Project Co-ordinator and Survey National Director was maintained throughout the project. Correspondence and material in connection with GUYREDEM were also exchanged on a regular basis, through the kind courtesies of the United Nations Food and Agricultural Organisation (FAO) office in Trinidad and Tobago, the UNDP in Guyana, and U.N. staff members travelling between the two countries. Personal contacts were also utilised to the fullest in ensuring that information could be shared and updates provided, particularly when telephone connections could not be established for prolonged periods and there was need for urgent discussions of matters relevant to the project.

37. These frequent and regular contacts between CELADE and the Statistical Bureau ensured that the two agencies maintained close collaboration in the execution of GUYREDEM. As a spin-off, there was constant evaluation of progress in the various operations, as well as responses to problems in keeping with a flexible approach to management. For example, in the fieldwork stage (to be described in Section XII), a decision was made to involve all available project staff, including the Project Co-ordinator and Survey National Director, in direct fieldwork (enumeration and supervision) in interior areas, so that there would not be too much slippage in completion time.

V. BUDGET

38. The sum of \$70,000 US (\$GY 301,000)¹ was allocated by CELADE for funding various aspects of GUYREDEM. In addition to this amount budgetted in 1985, CELADE also financed several technical assistance missions of its staff to Guyana from extra-budgetary sources; see Figure 3. In the continual effort to regulate and control costs, some of these missions were undertaken as adjuncts to responsibilities in connection with other projects, such as REDATAM,² in the Caribbean sub-region. Appendix B1 presents a breakdown of the project funds allocated by CELADE for GUYREDEM. Disbursement of these funds in Guyana was authorised in the form of releases from the UNDP in Georgetown to the Statistical Bureau. All such releases required and were made with the prior approval of ECLAC, Port-of-Spain and were used to fund a variety of items and activities, principally salaries and travel for field staff hired on the project.

39. CELADE-allocated funds were also expended directly from CELADE headquarters in Santiago and from ECLAC in Port-of-Spain. Santiago-initiated expenditures were mainly in connection with the procurement of the project's micro-computer equipment, software and ancillaries, such as computer diskettes and replacement ribbons. Expenditure from Port-of-Spain covered mission travel, the acquisition of project questionnaires, supplies, such as computer paper and materials for the field teams, and incidentals, such as the repair of malfunctioning computer hardware which had to be carried out in Port-of-Spain.

40. To attract suitable candidates and to provide motivation for employees to work for the anticipated (8 month) duration of GUYREDEM, the salaries of enumerators were approximately 30% higher than the minimum wage for clerical and related public sector employees. The remuneration for supervisors took into account their skills and responsibilities and was also set higher than that of full-time workers with similar positions in the

¹ \$1 US = \$4.3 Guyana in 1985 and 1986 and \$10 following a currency devaluation in January 1987.

² The REDATAM system was developed by CELADE for using micro-computers to rapidly generate small area data from a census or survey data-base. St. Lucia and Guyana are countries in the sub-region which have benefited to date from REDATAM development.

public sector.³ It was felt that this strategy would compensate for longer working hours and any lack of benefits, such as annual or sick leave, though in fact the survey administration had little hesitation in granting days-off to employees who indicated illness, or need to attend to urgent personal business. In addition to their salaries, field staff were paid a basic monthly stipend to cover costs of travel to enumeration districts (EDs) removed from their home areas and were required to maintain a monthly log of expenditure in this regard.⁴ When members of the field team were transferred to a region other than their region of residence, an additional stipend (fixed at \$GY 300 per month) was paid to cover a portion of their living expenses. Finally, during fieldwork in the interior areas, all expenses for the travel and subsistence of the various teams were covered from project funds.

41. The Guyana government contributed \$GY 25,000 (\$6,500 US) for 1986 GUYREDEM fieldwork activities, particularly to defray travel costs associated with enumeration of difficult-access areas which fell in the sample. An additional \$GY 40,000 (\$4,000 US) was budgetted for project activities in 1987. A breakdown of expenditure for the Guyana government's direct financial contribution to the project is presented as Appendix B2. Major and invaluable indirect contributions were also made by the Guyana government, particularly in the area of staffing. These are discussed under Section VII, Staffing.

42. No other agency or government had any direct financial contribution to GUYREDEM. However, as noted earlier, some mission travel was covered from extra-budgetary sources and a number of supply items, including clipboards and umbrellas for field staff during the rainy season, were also obtained outside the budget for the project. Two air-conditioners to permit operation of the

³ Enumerators were paid a basic monthly salary of \$GY 550 while that for supervisors was \$GY 750.

⁴ The travel allowance per enumerator was \$GY 200 and \$GY 350 for each supervisor. It was known beforehand that some enumerators would have larger distances to cover than others and at higher transportation rates. The monthly logs monitored field costs actually incurred and attempted to achieve some measure of equity in the allocation of transportation allowances. Field staff were reimbursed for any travel costs in excess of their monthly allowance, if such costs were deemed to be necessary and reasonable.

project micro-computers in a temperature-controlled environment were presented to the Statistical Bureau by the Canadian High Commission in Georgetown.

Figure 3. Sources of Funding for Major Elements in GUYREDEM

	GUYREDEM	Other CELADE	Guyana Govt.	UNFPA	REDATAM	Oth Ext Bud
Missions from/to Port-of-Spain	X(13)					
Missions from/to Santiago		X(6)		X(1)	X(4)	
Salaries/Travel allowances and other emoluments for field staff	X.		X			
Computers	X					
Air-conditioners						X
Questionnaires	X					
*Manuals and other documents	X					X
Supplies	X		X			X
Miscellaneous	X		X			X

Figures in brackets indicate the number of missions undertaken.

*Non-project sources of assistance substantially reduced the costs of producing manuals and other documents.

VI. SAMPLE DESIGN AND SELECTION⁵

Considerations in the Sample Design Process

43. In a national socio-demographic study with multiple objectives, such as GUYREDEM, the ideal approach would be to collect information from the entire population; that is, to undertake complete enumeration. However, this was not feasible because of prohibitive costs. The alternative was to conduct a sample survey, selecting a relatively small fraction of the population as the statistical study unit on which to base inferences about the whole.

44. In the case of GUYREDEM, there was an expressed desire to obtain separate estimates for all regions, including the remote interior regions of the country, despite their sparse and widely dispersed populations. After a review of the spatial distribution of population, it was judged that the selection of a sufficiently large sample to permit reliable estimates from interior regions would require the conduct of a near-census. Budget considerations militated against this, because of the high costs and resource requirements of travelling to and conducting such an operation in these difficult-access areas. However, rather than excluding them from study - as has often been done in other national demographic surveys - and selecting a fixed fraction of the population from the more accessible regions, every effort was made to marshal the available resources towards provision of at least minimal information for all regions of the country. This led to the adoption of a slightly more complex sample design than is traditional in such surveys. The elements in this design are described below.

45. The design of the sample was constrained by the minimum level of reliability desired for the estimates to be derived and by efforts to minimise the expenditure and maximise the benefit from the resources available for the project. Since improved

⁵ Complete details of the sample selection process, calculation of sample size and the allocation of the sample among the 10 regions are given in a technical report which also discusses certain special problems which had to be considered in the process. This report provides tables giving the actual values used in all the design calculations. See, CELADE, Technical Report on the Design of the GUYREDEM Sample, June 1987, Santiago, Chile (mimeo).

reliability usually corresponds to increased sample size- implying higher costs - the two types of constraint are mutually opposed. In practice, the more inflexible constraint is usually the budgetary one, and it was in the case of GUYREDEM. The objective of the sampling exercise was therefore to provide the most efficient design and greatest possible reliability within a fixed and relatively small budget. In this context, specialized sample design techniques were implemented to address, as closely as possible, all the data objectives of GUYREDEM, within this limited budget.

46. To provide a practical backdrop for the sample design, reference was made to and consideration taken of CELADE's previous experiences with demographic surveys, in conjunction with the Statistical Bureau's experiences on national surveys. Field costs were important elements in undertaking this design, with the main identifiable components being the salaries of enumerators and supervisors, payments for away-from-home expenses, and travel costs.

47. After the expected length of the interviews (estimated from tests of the questionnaire) and number of call-backs were determined, a first estimate of the daily yield of an interviewing team in both urban and rural areas was made. With this information and the approximate salaries to be paid to the field staff, the expected expenditure per interview was estimated for the several regions. Once a cost function was calculated, the basic elements of the sample design were worked out. This cost function was important in the process of sample allocation by area to permit optimum reliability of the national estimates, while respecting necessary minimum requirements at the regional level. This allocation exercise was carried out in several iterations and at the end was felt to objectively determine the overall sample size in relation to the available budget.

48. Because of differential costs by region, it was clear that reasonable reliability for even some of the more basic estimates (e.g. age specific fertility rates), would be difficult to achieve for all the lesser-populated regions, without affecting the total sample size. However, given the high priority attached by the Statistical Bureau and the SPC to the provision of regional estimates, a compromise approach was adopted. This saw the four more remote and lesser-populated regions being grouped into two pairs (1 with 7 and 8 with 9), a grouping based on their general demographic similarities and geographic contiguity. A sample size permitting a minimum level of reliability was calculated for each of these paired regions, with the component

regions of each pair having an approximately equal apportionment of the sample. Thus each of the four constituents could be considered as representing an independent element in the overall sample. Nonetheless, although in theory the design permits calculation of individual estimates for each underlying region, it is recommended that estimates be calculated only at the level of the paired regions. Any estimates calculated for the individual remote regions should be used only with extreme caution, due to their inherently high variance.

49. The sampling frame for GUYREDEM was based directly on the most recent information concerning the size and distribution of the country's population - that from the 1980 Census.⁶ Projection of the 1980 data forward to 1986 before carrying out the design, was not undertaken, for two reasons. First, there was sufficient evidence that population growth had been very small in the intervening years - at least at the national level - and for most regions, and additionally, there was no information at all on which to try to base sub-national projections. Secondly, and more importantly, as will be seen below, the open-ended nature of the second stage of the sample design adopted, automatically accommodates a reasonable amount of change anyway.

50. A two-stage sample design based on ED/clusters was determined to be appropriate, for reasons related to the organisation and requirements of fieldwork and to costs in several areas of the country. To achieve this design, the first-stage unit of selection was based on the 1980 Census EDs; the second-stage units were households. After consideration of the range of ED sizes (number of households within) and the desired sample sizes per region, as well as the expected yield per interview-team per day, samples of 25-30 households per cluster, were determined to be reasonable targets, with very slight variations according to the region.

51. The number of clusters (EDs) to be selected per region was also established. In most cases, each ED was eligible for selection on its own. In a few others, EDs with populations smaller than the minimum sample to be selected in the region, were grouped with neighbouring EDs until the resulting cluster reached or exceeded the minimum size in all cases.

⁶ Use of the census base meant that the sampling frame was complete in terms of geographic coverage and relatively up-to-date. There was also ready provision of a cartographic framework based on 1980 EDs.

52. As lists of all EDs per region were available (with the number of households in each ED at the time of the 1980 Census), this grouping and identification strategy was straightforward. Although the 1980 population of each ED was available, it was preferable to use number of households as the measure of size, since the final unit of selection was the household, rather than the number of persons within it. All persons within a selected household were included in the interview, thereby providing a basis for direct estimation of population.

53. Only private households were eligible for selection. Collectives, such as military camps, police barracks, prisons and hospitals were not included in GUYREDEM, although staff residences were.

54. The selection of clusters was done for each region separately. The list of clusters sequentially ordered by ED number (from lowest to highest) was used in this process of systematic selection, with the probability of selection being proportional to cluster size. Where more than one ED comprised a cluster, the composition of the group was that of EDs with sequential positions on these lists.

55. Within selected clusters, an equal-probability systematic selection of household numbers was carried out. This was done by using the Census size as the expected size, dividing this size measure by the desired yield, and rounding the resulting sampling interval to the nearest integer (or fraction in some cases). Use of the census size was based on the assumption that there had been relatively little population growth or intra-regional migration in the intervening years between the Census and GUYREDEM. However, in theory this assumption is not strictly necessary for implementing the type of design adopted by GUYREDEM, since the open-ended nature of the selection lists allows for population growth or decline within a cluster.

56. After the machine generation of random starts⁷ and use of the sampling fractions and skip intervals calculated, it was possible to specify the selected household numbers within each selected ED. This was done well in advance of the listing exercise. The provision of the sampling interval permitted the GUYREDEM senior staff to select additional households when-

⁷ To minimise bias, every effort was made to restrict human intervention in the selection process and to have random numbers generated mechanically.

after listing - the cluster turned out to be larger than that estimated on the basis of the 1980 Census, or in the event that the cluster grew between the time of listing and the time of interview. Since the selection of targetted households was done at Head Office and not in the field, the inclusion of additional households was facilitated by pre-selection of supplemental lines at the end of each list. Provision was also made for the listing and selection of multiple households in dwellings, if and when encountered.

57. The intent throughout the sample design and selection exercise was to preserve the probabilities of equal selection, while at the same time permitting flexibility in handling changes in ED populations as detected in the field. The objective was to minimise the extent of bias in the data and to obtain information on which reasonably precise inferences could be based. As indicated above, details of all the procedures and justification for their adoption may be found in the technical report on the sample design.

58. Regarding the listing exercise, and taking into account the high cost of visiting the remoter areas, it was decided that in those regions, the listing and interviewing would be combined into one operation. The selection procedures described above permit this. Special care was taken to ensure that the selected line numbers were clearly defined and that the field staff carried out the procedures according to instructions. The fact that senior members of the GUYREDEM team worked with the regular field staff in these interior and difficult access areas contributed to the guidelines being followed closely.

59. In GUYREDEM planning and in the process of designing and selecting the sample, consideration was given to paying per diem expenses to the field staff for nights away from home. As the Guyana public service per diem was several times the daily salary equivalent paid to the field staff, this would have had a major impact on the sample allocation through the application of the cost function described earlier. After due evaluation of options within the tight budget situation, it was decided to hire three of the teams in populated areas outside Georgetown, cutting down substantially on direct travel costs and per diems. As will be seen in Section XII (Fieldwork), the actual arrangements adopted regarding team work and travel took a slightly different form.

Sample Size

60. On the basis of calculations guided by the foregoing considerations, the expected sample size was approximately 9 000 households, or 6% of the total number of households in the 1980 Census. A minimum of 200 households were required per region, 500 for paired remote regions, and a maximum of 3300 in Region 4, including Georgetown. Estimated net field costs per interview under this allocation ranged from approximately \$GY 5.25 in Region 4 to \$GY 29.00 in Regions 1, 7, 8 and 9, and between \$GY 6.00 and \$GY 11.00 for the five remaining regions.

61. In addition to, but separate from the 9,000 households sampled for the full national survey, a small sample of just under 350 households was selected for the pilot project. The EDs were in Georgetown and surrounding areas and did not fall in the main sample. Work in connection with coverage of these pilot project EDs was budgetted as a separate element of the overall field costs.

Implementing the Sample Selection

62. Early in the listing for the full national survey, a problem with identification of the geographic extent of a few EDs was encountered. This was thought to portend potentially serious implications for the household counts associated with the selected clusters and consequently, for the composition of the sample. Despite its minor incidence, this problem is discussed in some detail, since it may be instructive in avoiding similar situations in the future.

63. It appears that during the 1980 Census, fieldwork in several EDs did not adhere strictly to the boundaries, with the result that there was over- or under-representation of the true ED as prescribed by the census cartography. When these EDs fell in the GUYREDEM sample, the result was the possible introduction of two different population clusters.

64. For simplicity, these errors were classified into two types: a Type A census enumeration error consisted of the complete coverage of the correct area (the assigned ED) plus some contiguous territory which properly belonged to one or more other EDs; a Type B error related to the incomplete enumeration of the relevant ED, with the enumerator failing to cover the territory assigned (the missing territory being included in some neighbouring ED with a Type A error, or being omitted entirely).

65. Other more complex census coverage errors may have occurred, such as a combination of Type A and Type B in neighbouring EDs. However, at the time of GUYREDEM listing, such details could not be easily distinguished and no attempt was made to determine the finer distinctions of error type. It is also possible that any observed change might have been due partly to error and partly to natural change. Again, this was difficult to detect, and it would have been impossible to apportion the change between the two sources without extensive and costly additional field work. In any event, the real issue was judged to be one of determining whether change in the population of an ED was due to natural growth or decline within the unchanged ED boundaries, or to an error in Census geographical coverage.

66. As a basis for addressing this issue, the assumption was made that the characteristics of contiguous EDs were basically similar, thus shifting the focus from one of precise identification of territory to one of determining the correct population size of the ED.

67. Unusually large changes between the census and GUYREDEM figures were designated as census enumeration errors of Type A or B, unless there was evidence that the area had actually undergone major change. If the evidence did not insist that an error had occurred, the differences were attributed to natural change. A cut-off of 20% growth or shrinkage from the 1980 Census figure was established as the point of reference. Changes greater than that were taken as listing errors, in the absence of specific additional information about the recent history of the ED.

68. It must be remembered that the fixed sampling interval and open-ended selection list allowed for growth or decline in the population. This meant that natural changes in population size generated concomitant changes in sample size, leaving the selection probabilities and thus the weights for estimation constant for each region. Against this background, the following logic was applied to the question of how to adjust (or not) the sampling parameters to cater for the "errors" identified in the listing phase.

8 The possibility of similar field coverage errors in 1986 is left aside, since any discrepancies were carefully noted and checked. The possibility of similar errors occurring in both 1980 and 1986 cannot be ruled out, but was considered to be even more remote and in any case could not have been detected if it had occurred

69. When there was a Type A error, GUYREDEM was using counts for an area larger than assumed for the selection probabilities. Subsequently, the selected ED was correctly listed in 1986 and found to be considerably smaller than expected. However, the sampling fraction prescribed the selection of a fixed yield of sample households from the larger area. Respecting this design would result in a much smaller yield, a misleading one in view of the fact that there had not really been any such population reduction. Based on the assumption that the population might not really have changed, the consequent action was to preserve the design yield corresponding to this population. The rationale for this approach was that the smaller area had been selected with probability proportional to size from the larger area enumerated in the Census (equivalent to assuming that the smaller area was representative of the larger), and then using the count for the smaller area to determine a sampling interval which gives the desired yield. The supposition involved is equivalent to the assumption that the coverage error in 1980 was random with respect to the population characteristics of interest to GUYREDEM.

70. Treatment of the Type B error was very similar. Here, the ED was not completely covered in the Census under its correct identification (although the omitted portions might have been covered and associated with other, contiguous EDs, giving rise to Type A errors in the latter). Since the GUYREDEM survey design had used counts for this too-small area for sample selection, respecting the design would have resulted in an excessive yield. To preserve the yield corresponding to the unchanged population, the larger geographic area was regarded as having been "derived" from the smaller area counted in the Census, i.e. that additional territory had been selected from a neighbouring ED. The count for the larger area was then used to determine the sampling interval and give the desired yield.

Weighting the GUYREDEM Sample

71. The use of a sample to provide data for the entire population requires an estimation procedure for weighting the sample. With a probability sampling scheme as outlined above, the estimation method is inherent in the sample design and is summarised below for GUYREDEM.

72. Within each region, EDs were selected with probability proportional to their sizes. Within each selected ED, a fixed number of households was systematically selected from the household lists, the number of households sought per ED being

independent of the ED's size. Each household in a region had the same probability of selection. This method was self-weighting within each region. The greater probability of selection for larger EDs was compensated for by the lesser probability of selecting any given household within the ED (due to the larger sampling interval), once the ED has been selected.

73. Since the sample design was self-weighting within each region, the weights need not be used for the estimation of rates and proportions per region. Needless to say, however, they are always necessary for totals at both the regional and national level. Likewise, the different sampling fractions per region mean that the weights must always be used when combining data from more than one region.

74. With each household in the region having the same selection probability, the weighting scheme is based on the principle that the weight of each selected unit in the sample is the inverse of its selection probability. This probability is the number of selected households divided by the total number of households in the region, based on the 1980 Census. The weight, then, can be calculated as the latter number divided by the former. For example, Region 1 had 3082 households and 278 were to be selected for GUYREDEM, so the selection probability was $278/3082 = .0902$ and the design weight was $3082/278 = 11.086$. This weight is applied to each sample household, to make the sample represent the entire Region.

75. Two minor adjustments were necessary to enable realistic inferences on the basis of this weighting scheme. First of all, there was a certain amount of non-interview, due to unavailability of some households through temporary absence, or when available, to the occasional refusal. The level of non-interview in GUYREDEM was very low, but nonetheless must be adjusted for, if the population is not to be under-estimated. The non-interview adjustment factor in a region is the ratio of the number of households eligible for interview, as determined at the time of listing, to the number of interviews actually obtained. This is multiplied by the design weight to give a final weight, and thus has the effect of increasing slightly the weight attached to each record.

76. Secondly, some of the computerised programs to be used for analysis of the data would only accept integer weights. Unfortunately, in some cases this meant rounding or truncating a weight so severely as to seriously affect the estimated total population of the region. Thus it was decided to use weights

which were de facto rounded to one decimal place, by giving some records the next higher integer weight and some the new lower, in such proportions as to represent the exact desired value at the aggregate level. For example, in Region 1, where the adjusted weight should be 12.4, rounding to 12 would underestimate the region's importance by over 3%, or more than 100 households. Giving 60% of the records a weight of 12 and 40% a weight of 13 gives an overall weight of 12.4 and eliminates the bias.

77. The sample design also determines the procedures for estimating sampling variance, which is one measure of the reliability or precision of the estimates obtained. This subject will not be treated here, but is dealt with in the Sample Design Report.

78. The principal elements of the GUYREDEM sample design are summarized in the following Table.

Table 1. Sampling parameters for GUYREDEM, showing numbers of households and weighting factors.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
REGION	1980 SIZE	DESIGN SAMPLE YIELD	DESIGN WEIGHT	ELIG FOR* INT	RES- PONSE	NON- RESP ADJ.	EXACT WEIGHT	ROUNDED WEIGHT	ESTIMATED HOUSEHOLDS
			(1)÷(2)			(4)÷(5)	(3)×(6)		(5)×(8)
1	3 082	278	11.086	286	256	1.117	12.385	12.4	3 174
2	7 973	612	13.028	624	550	1.135	14.781	14.8	8 140
3	20 381	1 128	18.068	1 169	1 070	1.092	19.723	19.7	21 133
4	64 413	3 384	19.035	3 401	3 163	1.075	20.467	20.5	64 842
5	9 918	582	17.041	625	571	1.095	18.653	18.6	10 621
6	29 102	1 623	17.931	1 637	1 512	1.083	19.413	19.4	29 333
7	3 609	300	12.030	309	291	1.062	12.774	12.8	3 725
8	830	206	4.029	241	222	1.086	4.374	4.4	977
9	2 352	293	8.027	311	305	1.020	8.185	8.2	2 501
10	8 088	621	13.024	617	571	1.081	14.073	14.0	7 994
TOT	149 748	9 027		9 219	8 511				152 440

* Eligible for interview on the basis of the field listing done shortly before the actual interviewing.

VII. STAFFING

79. The Guyana Statistical Bureau had no survey field staff in situ, nor could it readily call on persons with survey field experience to work full time on GUYREDEM. There was therefore no option but to recruit and train the field staff. An advertisement (Appendix C) was placed in the Guyana Chronicle, inviting suitably qualified persons to apply for positions in the survey team. These positions - as enumerators, supervisors and field co-ordinator - were based on an initial plan of operation which would have the field teams operating as autonomous units, with a reporting hierarchy of enumerators through supervisors to Field Co-ordinator and ultimately to the Survey National Director and GUYREDEM management team.

80. A number of points are noteworthy about the advertisement and recruitment strategy.

- (a) Since GUYREDEM was to be a national survey, applications were invited from persons countrywide. There were no restrictions on region of residence.
- (b) There was a lower but no upper age limit on applicants. However, during interviews there was tacit consideration of the rigours of survey fieldwork and some evaluation of whether applicants would likely be able to measure up to these.
- (c) Efforts were made to recruit persons in such a way that travel costs would be minimised without jeopardising supervision and the effective monitoring of field work.
- (d) Employment of enumerators was to be full-time. This was in contrast to the arrangements for the labour force surveys conducted in 1976 and 1977, the Guyana Fertility Survey and the 1970 and 1980 Censuses. These had focussed on teachers and/or public health nurses for part-time work. For GUYREDEM, the decision was to train intensively and work closely with a small, regular, full-time work-force. This was conceived as a strategy which would engender a commitment to the project, ensure close supervision, as well as the collection of accurate data and completion of the tasks in the various regions rapidly and at low cost.

81. The closing date for receipt of applications by the Statistical Bureau was March 15, 1986. This was four weeks after the advertisement first appeared in the newspaper, thus allowing adequate time for receipt of applications from all interested. In response to a letter from the Chief Statistician, some referrals for employment were received from the Guyana Employment Exchange and nominations were made by 3 regional councils. In all, 362 applications or referrals were received. All were screened and short-listed by the Survey National Director and Project Coordinator. The main considerations in this exercise were:

- (a) Education - GCE or CXC qualifications were judged to be adequate. However, notwithstanding the published advertisement, applications were also considered from persons not satisfying the minimum educational requirements;
- (b) Previous work experience - though persons with previous survey experience were preferred, this was not mandatory, since the intention was to undertake intensive and comprehensive training for all survey personnel;
- (c) Handwriting (for neatness and legibility).

During the interview, these points were again evaluated in addition to:

- (d) Deportment - since this would influence the reaction of respondents and ability of enumerators to establish rapport with them and collect accurate information;
- (e) Maturity - related to (d) above;
- (f) Oral communication skills - also related to (d);
- (g) Ability to work full-time on GUYREDEM.

It was recognised, of course, that other important qualities could not be readily discerned from the screening of applications, or from the interview (e.g. reliability and dependability, and honesty), but would have to be determined with the passage of time, or conducting other background checks, a few of which were done.

82. At the end of the screening process, 85 persons were invited to interviews. These were carried out by panels drawn from among

the Chief Statistician, Project Co-ordinator, Survey National Director and Senior Statistician from the Bureau and held at the Regional Council offices in Regions 2, 6 and 10 and at the Statistical Bureau office in Georgetown.

83. There was no written test for prospective enumerators. This practice is however recommended, since it permits a more complete evaluation of the enumerators (for example, their abilities to do quick and accurate calculations; see page 38).

84. There was a review of the merits of having only female enumerators, as a strategy for eliciting reliable information, particularly on fertility. However, since the proposed questions were to be simple, straightforward, subjected to a pilot test and deemed to be not-too-personal nor offensive, it was felt that this selection procedure was not necessary, apart from being discriminatory. The even split between males and females hired (see below) is, however, purely coincidental.

85. The following presents a breakdown of the screening and recruitment process:

Table 2. Elements of the Recruitment for GUYREDEM

Region	Applications Received	Persons invited for interview	Persons trained for pilot	Persons Hired for GUYREDEM	
				M	F
1	-	-	-	-	-
2	18	9	5	3	1
3	47	9	2	0	2
4	149	24	7	3	1
5	28	7	1	1	0
6	94	25	5	2	3
7	2	1	-	-	-
8	-	-	-	-	-
9	-	-	-	-	-
10	24	10	5	1	3
TOTAL	362	85	25	10	10

86. No applications were received from persons residing in Regions 1, 8 and 9 and no persons were hired from these regions nor Region 7. Though the applications of 5 persons (all with

university degrees) were carefully scrutinised and one person was hired on the initial intention of training him to be Field Co-ordinator, no person was eventually placed in that position. This necessitated a change in the approach to enumeration and is described in section XII, "Fieldwork".

87. Staffing for GUYREDEM was not operationalised only through the recruitment of interviewers. Several regular members of the Statistical Bureau staff were also assigned to work on various aspects of the project. All data entry operations were conducted by the Bureau's key-punching staff under the supervision of a Senior Statistician. The co-ordination of fieldwork was undertaken by a Senior Statistician and Field Technical Officer of the Bureau. Office coding of Question 13 and document control (issue and receipt) were the responsibility of two of the Bureau's clerks. Administrative support in the form of typing, payment of salaries and maintenance of accounts was carried out by regular secretarial and accounting staff of the Bureau. The national counterpart for technical supervision in data processing was seconded on a "needs" basis from the SPC. All these persons reported directly to the Survey National Director and through him to the Chief Statistician. Though these were not direct recruitments for GUYREDEM, nor did they result in any emoluments from the project budget, these staffing measures must be acknowledged as major in-kind contributions by the Guyana government and were of significant import in the allotted funds sufficing for the project. Appendix D presents information on GUYREDEM project personnel and their respective agencies.

VIII. TRAINING

88. There were 2 formal training sessions: the first in connection with the pilot project, the second for the full national survey. However, as a means of improving data collection techniques and imparting knowledge, it is correct to say that training remained an on-going process and continued throughout the survey. The objective was always to ensure that GUYREDEM staff functioned proficiently and collected high quality data.

Pilot Project Training

89. GUYREDEM pilot project training commenced on May 19, 1986 with 25 trainees/enumerators in attendance. Training was conducted at the Guyana Public Service Association Hall. These premises were rented for the training sessions because of the lack of suitable accommodation at the Statistical Bureau. A

blackboard was available for illustrations and elaboration of points for the benefit of the entire training group. Questionnaires and manuals (Enumerator's, Supervisor's and Listing) as well as specimen record-keeping forms, note-pads, pencils, pens, hi-liter markers and other stationery were provided to all trainees. However, no formal document outlining the training programme and schedule was issued to them. All persons were trained together, thus achieving uniformity in training.

90. The training sessions lasted 5 1/2 days, from 8.00 a.m to 4.00 p.m. each day, with a lunch-break. The Project Co-ordinator and Survey National Director conducted the sessions, with assistance from other professionals of CELADE and the Statistical Bureau. Trainees were thoroughly apprised of both the general and specific aspects of GUYREDEM, including its purpose, methodology, organisational elements and uses to which the data would be put. Considerable time was spent familiarising the group with the questionnaire (explaining why each question was included, how it was to be asked, what the response categories meant, what was required as an answer from the respondent, how this was to be recorded) and all other record-keeping and monitoring documents. Each and every aspect of the several manuals was reviewed and discussed in detail and an entire day was devoted to usage of ED maps. Trainees were also instructed in methods of presenting themselves to households so that they would be able to establish rapport with respondents, conduct efficient interviews, and elicit accurate information. Questions were encouraged throughout the training sessions and were permitted at any time. At the end of each session and each day, there was also a recapitulation of salient points covered, as well as commentary by trainers on the performance of trainees.

91. During the classroom sessions, the trainees each undertook a mock-interview, with one of the group functioning as enumerator and another as respondent. Trainers did not conduct any demonstration interviews, nor were non-survey personnel involved in any aspect of the classroom sessions. Opportunities were provided for those trainees not participating in the actual interview to comment, point out errors and make suggestions for improving enumeration techniques, before the intervention of the trainers with any additional points.

⁹ These manuals contained a few extra pages specifically for the trainees to make notes on what was discussed during the training sessions.

92. A number of classroom and homework exercises relating to the questionnaire, manuals, record-keeping documents, interview situations, etc. were prepared for the trainees who were always given the first opportunity to comment on or correct the work of their colleagues. As the questionnaire and concepts were relatively simple and straightforward, only occasionally was there a need to deal in-depth with possible exceptions or difficult situations. At the end of this training session which was conducted immediately prior to the pilot project, enumerators went into the field to conduct real-life interviews, during which they were observed and assessed by the trainers as a prelude to final selection. By the end of the pilot project, five trainees had been deemed unsuitable and took no further part in GUYREDEM.

Training for the Full National Survey

93. A second series of sessions lasting two days (August 25 and 26, 1986) and involving all survey staff was conducted just prior to commencement of the full national survey. Training was again carried out by the Project Co-ordinator and Survey National Director and was designed as a refresher course, with a much quicker and a briefer review of all aspects of the survey. As all enumerators had participated in the listing exercise (undertaken over the June - August period, see Section XII), there was ample opportunity for discussion of experiences in fieldwork and suggestion of solutions to the few problems brought to the attention of the trainers.

Other Training

94. In-house training was given to clerical staff of the Bureau who would be directly involved in GUYREDEM. These included two clerks who coded Question 13 (Occupation) and assisted in the review of comments in the Observations section of the questionnaire. As noted in Section XIV of this report, the regular data entry staff of the Bureau were trained in use of the data entry and verification routines for the micro-computers, to enable them to perform these tasks to the level of quality expected. The National Technical Advisor to the project participated in all phases of training for processing GUYREDEM data and was in constant liaison with the Project Co-ordinator and Survey National Director.

IX. QUESTIONNAIRE DESIGN, DEVELOPMENT AND USE

95. Of major importance in the overall development of statistical surveys are the decisions on:

- (a) how extensive should be the coverage of subjects (i.e. what topics should be included or excluded);
- (b) how comprehensive should be the investigation of topics selected; and
- (c) uses to which the data would be put and by whom.

96. During the process of final selection and operationalisation of GUYREDEM topics, consideration was given to:

- (a) the overall purpose of the survey and its specific objectives;
- (b) the target population;
- (c) the time frame for completing the project;
- (d) the costs and available budget;
- (e) interests vs needs of potential data users, researchers, and the ultimate beneficiaries - the government and people of Guyana;
- (f) respondent burden, i.e. avoiding a very long and complicated questionnaire; and
- (g) data processing concerns, e.g. pre-coded vs enumerator or office-coded responses and the complexity of programs to edit and tabulate the data for timely release.

97. Consensus was needed on the nature of information needs and their level of detail - how many and what questions were absolutely essential, which could be considered very useful and which were only just interesting from an investigative point of view.

98. Since GUYREDEM was envisaged as a one-time demographic survey geared to providing statistical information which would contribute to filling gaps in the knowledge of fertility, mortality and migration in Guyana, these were essential and focal

issues. Considerations then extended to how these matters would be investigated, i.e., what specific information should be collected under these broad topical headings and how the concepts should be elaborated to ensure provision of accurate answers to the questions and collection of complete and reliable information to satisfy the diverse needs of users. Wherever possible and practical, concepts as used in the 1980 Guyana Census were maintained, both for familiarity and to facilitate historical comparability in analysis. Nonetheless, much attention and effort were directed at the way the questions were posed. The objectives were to ensure easy comprehension by and co-operation of respondents and to allay any fears about sensitive information or an invasion of privacy. At the same time, these objectives had to be balanced against the requirements of accuracy and meaningful data.

99. The majority of questions had been used in censuses in Guyana, (see Appendix E) or in national demographic surveys conducted by CELADE in Latin America. Nonetheless, it was still necessary to think of possible refinements and to pay careful attention to such matters as the sequencing of topics, the structure and layout of questions and semantic considerations.¹⁰ The goal was improvements, even if marginal, in the data collected from the exercise. For example, mortality and migration modules were placed at the end of the questionnaire in order to negate, as far as possible, any withdrawal or negative feelings which could have been engendered by the detail required on these topics. Because of the importance of mortality information, previous CELADE surveys had placed this topic on the first page of the questionnaire.

100. Though CELADE's experiences in conducting retrospective demographic enquiries in the Spanish-speaking countries of South and Central America suggested useful approaches which could be instituted at a saving of both time and cost, these had to be modified to suit the Guyana socio-cultural context. Thus the data collection exercise had to take due cognisance of this context, the socio-cultural correlates which were deemed important within it, and the requirements of the authorities and data users in Guyana. The final GUYREDEM questionnaire reflects a response to these considerations and the experiences of the pilot project.

¹⁰ One obvious difference was GUYREDEM's use of verbatim questions, theoretically leaving little room for variation on the part of enumerators in the collection of information.

101. The questionnaires used in GUYREDEM (for both the pilot project and full national survey) are included in Appendix F. CELADE and the Statistical Bureau of Guyana collaborated in their design. For the pilot, a mock-up in near-final format was provided to the Trinidad and Tobago Central Statistical Office (TTCSO), which composed and printed the final document in Port-of-Spain. This action was taken because of lower estimated costs and the fact that the TTCSO could prepare the final documents of a high quality and in time for conducting the pilot as scheduled. Most of the institutions contacted in Guyana could not guarantee delivery, because of uncertainty about the availability of paper with which to prepare the questionnaires or through fear of recurring power outages generated by fuel shortages. For the full national survey, the pilot questionnaire suitably modified, was provided to a private printing establishment in Trinidad and Tobago for composing and printing the final document.

102. An 8 1/2" x 14" format (34.5 cms vertical¹¹ x 44 cms horizontal), with black lettering on white bond paper¹¹, was used in both the pilot project and the full national survey. Clipboards of similar dimensions were issued to enumerators. Both questionnaires and clipboards fit snugly into briefcases (procured for and remaining from the 1980 Census in Guyana) and GUYREDEM knapsacks and satchels which were subsequently issued to the field staff, to protect their documents from the elements.¹² Enumerators were required to complete the questionnaire in pencil.

103. The design and format of the GUYREDEM questionnaire were carefully evaluated in light of 3 principal concerns: (1) workability and handling under the tough field conditions of non-urban and interior areas; (2) the ability of enumerators and supervisors to manually perform consistency checks among the responses for various household members; and (3) the possible obstacles to data capture which could be posed by the layout. Nothing particularly worrisome was discerned from this review. In fact, the experiences of the pilot project were that the format and design were workable, with no major modifications being necessary.

¹¹ This was more for convenience rather than as a result of any technical consideration, such as visual impact.

¹² As an additional precaution, plastic bags were also issued to be used for this purpose.

104. The GUYREDEM questionnaire comprised 5 sections occupying 4 pages. These sections were:

1. Identification
2. Observations
3. Characteristics of Respondents
4. Mortality
5. International Migration

The last section was prepared and included as a separate experimental module by the Statistical Bureau in response to the SPC's concern and desire to address a perceived problem of emigration and loss of skills and talents.

Section 1: Identification

105. Page 1 of the questionnaire carried the title of the survey (conspicuously located at the top along with a reminder about the confidentiality of any information provided by householders), information identifying the sponsoring and executing agencies (at the bottom), and sections 1 and 2. Since the questionnaire was to be enumerator-administered, there was no preamble outlining such aspects as the background, approach, methodology, etc. of the survey. These subjects were adequately dealt with in training and the several manuals provided to the enumerators and it was felt that questionnaire space was at a premium. In addition, call-back cards provided similar information to that which would normally be contained in the preamble to a questionnaire.

106. Section 1 of the questionnaire was devoted to information which identified the household and located it geographically. In sub-section (a), GUYREDEM enumerators were required to enter a numeric code consisting of 11 digits. The first two digits locate the household in one of the country's 10 administrative regions; the third and fourth identify the major area (MA) - or part thereof - within the region¹³; the next three digits take geographical information down to the tertiary level of the enumeration district and the eighth indicates whether the area is rural or urban; finally, the last three digits assign a number to the household. Each household therefore has its own unique identifier.

107. In the 1980 Census, geographic identification did not include administrative regions. No definitive maps indicating the

¹³ It should be stressed that the MAs demarcated by the Statistical Bureau for census purposes, cross regional boundaries. A region may therefore contain parts of several MAs.

relevant boundaries were available to the Statistical Bureau. As a result, only the major area concept was used, with this geographic breakdown following major settlement configurations.

108. In sub-section (b) of Section 1, the interview date provides a time reference point which, in conjunction with date of birth information in the main body of the questionnaire, permits the calculation of age of respondents. It was anticipated that all interviews would be completed by 31 December 1986, hence the pre-coding of 86 on the questionnaire. Unfortunately, due to problems with airline scheduling for interior fieldwork, 5 of the 317 EDs were not completed until January 1987.

109. The two-cell space for number of usual residents was completed to record household size, with single digit entries being preceded by a zero. Information on number of usual residents (i.e. excluding persons temporarily staying at a household and persons who were away for more than six months) served as a check to ensure that all household members were accounted for. It was used for computing the stable resident population of geographic units, such as EDs and regions. In some cases - especially in large households - the experience was that some respondents would forget to include one or two persons, particularly grandchildren, nieces and nephews, live-in helpers, lodgers and other persons not closely related to the head or spouse. This led to a discrepancy between the information entered on page 1 of the questionnaire and the number of persons who were in fact household members, as recorded in Section 3 of the questionnaire. During their final questionnaire checks for completeness and correctness, enumerators were required to address errors of omission and resolve such discrepancies by making the appropriate adjustments before leaving the household. For instance, if the number of usual residents was indicated as 07, then it was expected that information would be recorded for seven persons in the main body of the questionnaire. If information was provided on 8 persons, the enumerator was required to verify that all persons were in fact members of the household, in which case the 07 would be changed to 08.

110. The entries for MORT and MIGR were to be inserted at the end of the interview. The former pertains to household members who died since 1983 (section 4 of the questionnaire); the latter records the number of household members who left for residence abroad since 1981 (questionnaire section 5). Both MORT and MIGR required single digit entries, since it was not anticipated that households would survive if more than 9 of their members died within 3 years, or left to live abroad. These assumptions were

made on the basis of the pilot project and were largely (though not entirely) borne out by the full national survey. Of the households enumerated, none experienced more than 5 deaths in the 3-year period prior to the interview. There was however one survey household which reported 10 emigrants during the reference period. The action here was to record information on only the 9 most recent emigrants. Incidentally, despite this logic of making allowances for a maximum of 9 events on page 1 of the questionnaire, there were (in error) provisions for the recording of 10 deaths and 10 migrations on page 4.

111. The full postal address or exact location of the household (sub-section c) was not data captured. In the initial stages of GUYREDEM, the information was utilised as a check to ensure that visits were being made to the correct households. It was also useful, throughout the survey, for follow-up visits by supervisors and survey monitoring staff in cases of incomplete or inaccurate information, or where spot-checks were to be made.

Section 2: Observations

112. Section 2 of the questionnaire was designated as the "Observations" area, for recording information on the household and/or its members, if it was thought to be relevant to GUYREDEM and could assist in clarifying perplexing situations. This information was largely up to the discretion of the enumerator and was mainly in connection with such matters as the incorrect order of listing household members, perceptions of information accuracy, or issues which the enumerators wanted to discuss and clarify with their supervisors. As may be expected, this area was much used during the initial stages of GUYREDEM, when enumerators were not as familiar with the concepts and approaches as they would later become. All observations were reviewed by office staff prior to data entry. Adjustments, e.g. changes in the order of listing, or correction of errors in the identification of relationship, were made on the basis of this review.

113. The sections requiring Date of Editing/Coding and Date of Data Entry were designed as a monitor on elapsed time between completion of interview (interview date), office review and clerical coding, and data entry. In retrospect, this information was superfluous since the processes of office-review and coding and of data entry were undertaken by ED batches. There was therefore no need for inclusion of these sections on each individual questionnaire, only on the labels for the envelopes containing these documents; see section XIII.

Section 3: Characteristics of Respondents

114. Section 3 occupied pages 2 and 3 of the questionnaire and recorded selected characteristics (17 topics) of each member of the household. These topics and the questions addressing them were located in a single column on the left half of page 2. Adjacent to this column, was the column for information on the head of household. The questionnaire included four half-page inserts between Pages 2 and 3 providing 8 columns to accommodate responses for 8 household members. Each side of the insert repeated the answer categories and recorded the information for one individual. Page 3 of the questionnaire was divided into 2 columns, for the 10th and 11th members of the household.¹⁴ The questionnaire was thus of a design which would accommodate up to 11 household members, a size consideration judged (on the basis of information from the 1980 Census) to be adequate for over 95% of all households in the country. Additional questionnaires were used for households which did not conform to these expectations. These continuation documents were clipped to their counterpart in the field and subsequently stapled in the office.

115. Questions 1 to 7 inclusive, collected basic information on all household members. This is clearly indicated in a vertical band to the extreme left of page 2. Questions 8 and 9 were relevant only for persons 5 years and over, questions 10 through 13 to those persons who were at least 14 years old, and the final four questions only for females 14 years and over. As is illustrated schematically in Appendix G, the sequence of movement from one block of questions to another resulted in a reduction in the number of persons required to answer the remaining questions. Answers were given to the questions relevant to each household member and there was no need to refer back to him/her for answers to any additional questions once the relevant block(s) had been completed. Thus, for example, after Question 7, no information was required on persons less than 5 years old.

116. Each group of questions was appropriately demarcated by a very distinct, horizontal, shaded band, running right across pages 2 and 3 and through each insert. During pilot project fieldwork, it was discovered that a few enumerators had problems in doing age calculations quickly, and sometimes correctly. The training sessions could not necessarily rectify these problems.

¹⁴ Each person in the household was thus allocated one column - on one page only - for the recording of information relevant to him/her.

As a consequence, each band contained a section which was inserted to eliminate the need for performing these calculations. Enumerators were simply required to enter the interview date in the area FOR ALL PERSONS BORN BEFORE |__|__| |__|__| and check the person's date of birth against the information entered. For example, if the enumerator was conducting the interview on 5 October, then 05, 10 would be entered. In the case of the first band, any person born after |0|5| |1|0|81 would not yet be 5 years old, hence the interview would end for that person.

117. The entire questionnaire was enumerator-administered, i.e. enumerators visited households and conducted personal interviews to collect and record information in response to specific questions. All questions were verbatim questions under topical headings, such as name, date of birth, widowhood, and child survival. All topics and instructions for collecting and recording the information were elaborated in an Enumerator's Manual which was provided to the field staff as an operational instrument for their work.

118. The preparation of questions to be asked verbatim by enumerators, contributed to standardisation of the data collection process and reduced the possibility of variation in the interpretation of concepts by enumerators and the heterogeneous population of respondents. Dotted lines were inserted in the text of questions so that enumerators would be reminded of the need to use the respondent's name or the appropriate possessive adjective during the interview. All questions were simple and brief. None required complicated instructions or much elaboration to clarify fine distinctions. Only 2 contained more than 10 words and most contained 7 or fewer. Likewise, the response categories were simple and familiar to the majority of respondents. To the extent possible, efforts were made to ensure that the flow of questions was clear and logical and that related questions or those requiring field comparisons for consistency were placed together; for example, 7 and 8 (geographical location), 12 and 13 (economic activity and occupation), 14 to 17 (fertility). Complicated skip instructions and explicit filter questions were avoided as were wordy preambles for each section or topic. These strategies kept the questionnaire to a minimum, neat and manageable size (both in terms of physical structure and time to administer).

119. Most questions had fixed answer categories which restricted responses to the options listed. These options were pre-coded and simply required the enumerator to mark an "X" in the box indicating the given response. Some questions, such as date of

birth and place of birth, required entry of a numeric code in a specific place. Only one (Question 13 - Occupation) required an entry in words and the subsequent assignment of a code in the office, prior to data capture. Though question 1 was also a response written in words, the names of respondents were not data captured.

120. To reduce non-sampling or response errors and facilitate the collection of accurate data, enumerators were trained, as noted earlier, so that they clearly understood the concepts and requirements of GUYREDEM and were in a position to explain the reasons for the project to those householders requiring this information, or clarification of any point. They were also issued with manuals detailing operational procedures, providing instructions and amplifying the concepts addressed by the questionnaire. For each question, the conceptual approach and experiences of GUYREDEM are described below, as a record of the data collection techniques implemented. On occasion, alternative approaches are discussed even if, sometimes, the potential advantages and improvements are believed to be negligible.

Question 1: Name of Respondent

121. Question 1 requested the names of all household members. There was very little reluctance to provide this information. Occasionally, it was necessary to make clear to the respondent that names were only requested as a means of ensuring that no household member was being omitted, or information collected twice. Most situations of reluctance were overcome by explaining the purpose of the information and its confidentiality. It was also pointed out that names were not going to be data captured for the subsequent use of anyone. In fact, as fieldwork progressed and speed became a critical factor during work in interior areas, the scribbled and abbreviated entries for names were comprehensible only to some enumerators themselves. This was in spite of a request on page 26 of the enumerator's manual that entries should be made clearly, legibly and in block letters.

122. The question on name contained 2 code-boxes for capturing information on whether the responses were provided by the person to whom they refer or whether they were provided by some other member of the household. The purpose of this inclusion was to give some indication of reliability, particularly in connection with the fertility questions. Of course, it is never an easy

task to get around situations where respondents are concealing or providing misleading information, such as number of live births, even if they themselves are giving the responses. However, the approach of these 2 code-boxes was in keeping with the belief that information was likely to be more accurate if provided directly by the person to whom it was relevant. Enumerators were instructed to attempt to obtain information directly from females who were 14 years and older.

Question 2: Relationship to Head of Household

123. Question 2 sought to determine the relationship of other persons to the individual identified as head of the household. It was possible for any person over 14, of either sex, to be identified as head of household, though the identification of males far exceeded that of females. This identification was done by the head him/herself or any other adult household member, using whatever criterion (e.g. age, father, mother, bread-winner) was felt to be important. No attempt was made to determine what was the criterion used in the identification; neither was there an effort to determine whether the person identified as head was so recognised by all household members.

124. Head of household was the only relationship which was essential in every household and each household could have only one head. All other household members were identified in terms of their relationship to the head. The position for head of household was pre-determined (column 1, i.e. the right half of page 2) and pre-entered, thus requiring no coding action on the part of the enumerator.

125. Seven types of relationships or family ties other than head of household were specified as pre-coded options. The placement of household members in the second, third and following columns was to follow a pre-set pattern which could facilitate subsequent determination of family patterns within the household. On the questionnaire, the response categories for relationship were placed in the sequence that enumerators were required to list household members. The spouse of household head (if such a person was a usual resident and thus member of the household) was always to occupy position 2 (second person), followed by the eldest child of the couple (again, if the couple had children) and his/her family. The possibility thus exists for the construction of primary, secondary, and extended family units. In the initial stages of GUYREDEM, a few enumerators had problems in following the prescribed order of listing, since they could not quickly determine relationships, particularly in unconventional household

groupings. These problems were almost non-existent by the end of the survey.

Question 3: Date of Birth

126. Accurate information on age composition of the population is important both in itself and in providing a framework for analysing other demographic data. During preparation of the GUYREDEM questionnaire for the full national survey, there was a lively debate on whether a date of birth question or a direct question on age would be the more precise in providing information for subsequent demographic analysis. Results of the pilot project had not been persuasive in suggesting removal of the date of birth question and its replacement by some alternative or combination of alternatives such as "How old are you?" or "How old were you on your last birthday?" or "What is your age in completed years?"

127. Though the use of date of birth in conjunction with a question on completed years would have enabled the enumerator to do a quick check on the consistency of age reporting, there was the counter contention that these calculations would slow up the interview process considerably, apart from increasing the questionnaire length. In addition, the view was expressed that this double-barrelled approach constituted an excessive demand, precisely because it amounted to a direct check on the previous answer.

128. Since a question on date of birth presented the possibility of verification through reference to documents such as National Registration I.D. cards and permitted little opportunity for age rounding and digital preference, it was retained over a direct question on age. In several parts of Guyana and in particular among the Amerindian population, the reference to I.D. cards, especially for household members who were not at home during the interview, was the principal means of obtaining information in respect of age. Recording of date of birth removed the need for calculation of age by either or both the respondent and enumerator. This was done automatically by machine at the data processing stage, through reference to Question 3 and the interview date.

129. While providing a satisfactory solution, the date of birth approach was not completely problem-free. To be sure, the overwhelming majority of the population was able to provide precise information on date of birth, albeit in several cases through reference to documents such as I.D. cards, birth or

baptismal certificates, passports, information written in exercise books or on the back cover of Bibles, and so on. However, there were instances, particularly among the Amerindian population, where neither the day nor month of birth could be obtained by any means - the respondent simply did not know and the I.D. card or other document gave only an estimated year. In all such situations, the day and month were imputed during data processing as 15 and 06 respectively. Where even the year was unknown or could not be estimated by the respondent, a rough estimate was provided by the enumerator on the basis of probes to the respondent. Enumerators were required to always attempt to obtain a year of birth even if this was an estimate established through discussions with and probes of the respondent. Day and month were less consequential. However, enumerators were requested to make notes in the Observations area of the questionnaire, or next to the question itself so that the absence of information would not be interpreted as errors in their work. In the case of estimated year of birth, some enumerators used initiative and inserted "est." below or adjacent to the space for year. No system is in place for electronically determining in how many cases the imputation of day and month was undertaken or what was the incidence of field estimation of year of birth. The consensus among the survey staff however, was that these occurrences were not in significant numbers, though % of the GUYREDEM respondents had a day and month of birth as 15 and 06.

Question 4: Sex

130. A classification of the population by sex, like age, is essential in demographic analysis, both as an objective in itself and as a basis for presenting and interpreting fertility, mortality, migration and other data. The question on sex was also used as a filter for determining who should answer questions 14 through 17.

131. No problems were experienced with this topic which required the recording of whether respondents were male or female. This information was verified manually against the respondent's name and fertility information to determine if there were any obvious misreporting or misrecording errors. None were found.

132. The question on sex was usually not asked directly, since in the majority of cases it could be determined by direct observation. However, in cases where the person to whom the information referred was not at home and the name was not conclusive, sex was determined by confirmation. This involved an

approach such as "Terry Smith, Boy, right?" and was deemed to be less offensive than asking "Is Terry a boy or girl?"

Question 5: Race

133. Race was judged to be an essential topic in any socio-demographic survey in Guyana. This was premised on the contention that issues such as household composition and fertility behaviour vary significantly by race. The 4 largest groups from the 1980 Census were included as individual categories, while all others were encompassed under "Other". The selection of 4 groups (East Indian, Negro/Black, Mixed, and Amerindian) enabled the survey to address the interest of the SPC in the collection of information on the major race groups and the Amerindian population, a point reinforced by the sample selection and design to cover all 10 administrative regions in the country.

134. Since the information was collected by enumerators canvassing individual households, there were adequate opportunities for visually verifying the race of respondents. While the total reliance on visual impressions was discouraged, there were cases where the respondents would ask the enumerator to decide what they were. The result was invariably the recording of "Mixed" by the enumerator. In this connection, there were also cases where the enumerators would have recorded either East Indian, Negro/Black, or Amerindian but the respondents reported that they were "Mixed" and this was the response recorded.

135. The pre-coded response box with the abbreviation "D.K." (Don't Know) was for the recording of cases where the person providing the information did not know which category would be appropriate for a household member who was absent. The situations in which this answer-box was used were negligible. Simply by reference to the person's name or relationship to the head of household and probing the person providing the information, enumerators were able to determine what should be recorded as the race of the absent person. However, even the need for resorting to this action was rare.

Question 6: Survival of Mother

136. This question gathered information which was used for estimates of adult mortality. It was assumed that most respondents would know whether their mother was alive or not, and

in case of the former, whether she was in Guyana or not. Nonetheless, it was recognised that all respondents would not be providing information on their own mothers (e.g. cases of unrelated household members, where one person was not at home), and there would be situations where respondents simply did not know because they had long been out of touch with their mothers. For this reason, a D.K. box was inserted. There were, however, very few cases in which enumerators had to resort to make use of this box.

137. Much attention was devoted to finding a simple and clear strategy for eradicating problems encountered in the pilot, where enumerators were coding "dead" and "Guyana", or "dead" and omitting the year of death. The approach finally adopted, with use of arrows and making better use of questionnaire space through a more distinct separation of response categories, was found to work quite well and considerably reduced enumerator coding errors.

138. Year of death presented problems of recall, particularly for older people whose mothers had died several years previously. Every effort was made to get precise information on recent maternal deaths, with "recent" defined as since 1970. For earlier years, if respondents had problems of recall, enumerators tried to pinpoint the appropriate decade (e.g. the forties), by asking respondents how old they were when their mother died and using probes such as little boy/girl, at school, teenager, big working man/woman, children of your own, etc. With this approach, there was success in obtaining information on year of death, albeit in some cases an estimated year, such as around 1950.

Question 7: Place of Birth

139. This question provided information which, in conjunction with other responses, enabled the estimation of life-time and recent migration. Life-time migration was determined by reference of place of birth to current region of residence as indicated in the Identification area on page 1 of the questionnaire; recent migration by comparison with question 8.

140. Place of birth was coded as 01 to 10 for the administrative regions of Guyana and 11 to 23 for birthplaces outside Guyana. For persons born in Guyana, information was only collected on region of birth, not on any lower geographical level. It is therefore not possible to do analyses of rural-urban migration or of movement between localities within the regions, though this

information may have been of some interest to planners. For example, field experience suggested that the seemingly rapid growth of areas which serve as the hub of activities for traders (e.g. Lethem and Charity) is a phenomenon which should be measured.

141. For birthplaces outside Guyana, the country's three South American neighbours (Brazil, Suriname and Venezuela) were coded, as were the countries in the Caribbean region identified as being numerically significant sources of emigrants to Guyana. The complete list is:

11 - Barbados	18 - Venezuela
12 - Jamaica	19 - Canada
13 - St. Lucia	20 - United Kingdom
14 - Trinidad and Tobago	21 - United States
15 - Other Caribbean countries	22 - India
16 - Brazil	23 - Other Countries
17 - Suriname	

142. Place of birth information, though extremely valuable, has the weakness of not being able to reflect intervening moves, e.g. "(a) Person born in Region 1/ (b) Lived in Region 7 for 25 of 27 years/ (c) Now living in Region 4 where enumerated. Only the information in (a) and (c) is captured. In fact, if the respondent had moved several times but at the time of enumeration was living in his region of birth, he would be recorded as a non-mover.

143. To generate information on period of immigration, all persons born outside Guyana were requested to give the year they arrived in the country. As for previous questions requiring the identification of dates, some older persons who had migrated to Guyana a long time ago, had difficulties of recall. As a result, similar prompts and probes were employed in this question, e.g. did you arrive as a young person, after the war, before your mother died, etc.

144. Since the regional administrative system in Guyana was only recently established, it was necessary to orient both enumerators

and respondents to the country's 10 regions. To this end, enumerator's manuals contained a map identifying the regions and indicating some of the main settlements within each. If there was doubt as to which region was to be coded, enumerators made a note of the locality name and/or nearest larger settlement for subsequent office verification or assignment of the appropriate code.

Question 8: Place of Residence 5 years ago

145. This question provided information which may be used for analysing (a) recent internal migration between administrative regions and (b) recent international migration. Some aspects of recent return migration may also be discerned from this and the preceding question.

146. Recent internal migration is determined by comparison of region of current residence (I.D. area of questionnaire) with region of residence 5 years ago (question 8); recent international migration by analysing the residence information of persons born outside Guyana as recorded in questions 7 and 8.

147. Only individuals who were at least 5 years old, i.e., born in or before 1981, could logically have a response for question 8. For this reason, enumerators were required to not only refer to the reference period "5 years ago", but also to the year 1981 and the month in which the interview was being conducted. If the interview was being conducted in September 1986, the enumerator would phrase the question, "Where did you live 5 years ago, i.e., in September 1981?" At all times, enumerators were required to be aware that "live" meant permanent residence and not just some place where the respondent may have been visiting.

148. No significant problems were experienced with this question though (as for place of birth) some respondents had difficulty in identifying their previous region of residence. This issue was addressed by enumerators in the same way as for determining place of birth.

Question 9: Education

149. Education was included as an explanatory socio-cultural topic in GUYREDEM, particularly as it related to fertility and migration. Two questions were included, to obtain information on (a) the highest level of schooling for all persons who were at least 5 years old and (b), the number of years completed at the level indicated in (a).

150. A number of problems were experienced with the topic of education. Caution should therefore be exercised in the use and interpretation of data pertaining to this subject in order to avoid faulty, if not erroneous, conclusions. It should be stressed, however, that the question on education was not included for provision of information as an end in itself. Rather, it was included as a socio-cultural factor in population dynamics. Some of the problems which are referred to are internal to the analysis of education, if it were to be viewed as the primary target of investigation. They would have little impact on, for example, fertility analysis, in which education is viewed as a factor in fertility.

151. The first pre-coded answer-box was for persons who had no schooling. In this group would be adults who, for whatever reason, had never attended school, or young children who were 5 years or older but had not yet started to attend primary school. Any person for whom the response was no schooling would logically have a response of 0 for years completed. Consequently, in part (b) of the education question, the enumerator was directed to a pre-coded box indicating the appropriate action. No problems were experienced here, though, as for the previous question, it was important for enumerators to be on their guard against inclusion of persons who were younger than 5 years.

152. Primary education generated the first problems. There was a rather artificial distinction in the field between no education and primary education for young persons. This was generated in large measure by a desire to recognise that some schools comprised kindergarten (Prep A) as well as primary departments (Prep B, Primary 1, Primary 2, etc). Enumerators were therefore required to determine which school class the subject was in or when he/she had started school, before being able to determine what should be the appropriate code for the level attained.

153. Yet another problem was encountered with number of years completed, at any level. The general field experience was one of respondents tending to regard the current class as the number of years completed. For example, if a 6-year old child had just started primary school (completing 2 months attendance), this was reported as 1 for years completed, rather than zero. Likewise, if the child had been attending secondary school for 10 months, this was reported as 1 rather than zero for years completed. Fortunately this reporting tendency was detected very early in the fieldwork and enumerators were able to develop very effective probes in order to record the relevant answers. Among these probes were: What class is the child in? When did he/she start

school? Has he/she taken CXC or GCE exams? The child is only 6 years old, so he just started primary school?

Question 10: Widowhood

154. The widowhood question sought to determine the survivorship of spouses or of partners in de facto marital relationships, in order to facilitate the estimation of adult mortality. Since the relevant analytical techniques require the identification of first relationships (legal, customary or common-law), there would have been no harm in emphasising the word "first" in question 10, either through bold print or by underlining. This would have served as an additional reminder to enumerators, even though they were trained to be clear as to the concept and to emphasise that the question referred to first spouse or first partner.

155. No follow-up question was specified to ensure that responses referred to first relationships. However, as a result of their training sessions, enumerators were aware of possible follow-up techniques, such as "Were you married before this marriage?" or "Your current husband/wife is your first and only one?"

156. The response categories were straightforward.

(first spouse or partner)	Alive
	even if respondent remarried
(first spouse or partner)	Dead
	Don't know (whether first spouse or partner alive or dead)
Respondent	Never in union (i.e. never married or lived common-law)

Question 11: Current Marital / Union Status

157. The categories in this question were repeats of those in the 1980 Census, with the following modifications: (a) Divorced and Separated were combined into one category to eliminate the artificial distinction, as far as fertility was concerned; and (b) a response box was added for "Don't know", to cover cases where the information was being provided on behalf of an absent householder.

158. Enumerators were required to read the question slowly, stressing the word "currently" and pausing between each

marital/union status. Responses were not to be recorded until the question was completed (i.e., all statuses had been indicated to the respondent), or the answer was clear and unambiguous. In later stages of GUYREDEM, many enumerators were relaxing on this requirement, since respondents were providing the relevant information very early in the interview. For example:

Enumerator: How many persons usually live here? (to obtain number of usual residents for page 1 of the questionnaire)

Respondent: Me, my wife, 3 sons, 2 daughters and 1 grandson

At question 11:

Enumerator: You're married, right? Not common-law?

Respondent: Yes, married. For 25 years.

159. As for the previous topic, the option to emphasise the word "currently" through underlining or bold print may have been exercised in preparation of the questionnaire. However, with the topical heading already in boldface, it was felt that additional emphasis in the text of the question would be aesthetically displeasing. Another option which may have been exercised in this question was to have it prepared as a read-in question, using a format as indicated below.

Are you currently ☐ ☐ ☐ ☐
 Married Common-law Visiting Widowed.....etc

A "flash-card" containing the various response categories might also have been prepared for respondents to view before they gave the appropriate answer.

160. Enumerators found that common-law relationships and visiting unions were somewhat difficult to deal with in the field and required elaboration. Definitions and discussions of the several concepts addressed by the marital/union status question were provided in the enumerator's manual for precisely this purpose. In addition, much time was spent on this topic during the training sessions. Though by definition, the categories were mutually exclusive, visiting unions generated some problems, particularly in situations of extra-marital relationships. Likewise, persons who were legally married but living apart from their spouses (e.g. spouse emigrated; respondent awaiting his/her

papers before doing same) were unsure of the appropriate response.

161. Enumerators were required to perform internal consistency checks and checks between question 11 and question 10. For example, if the marital/union status of the head of household was "married", then one could logically expect the marital status of Person 2 in the household to be "married" as well, the two persons forming a nuclear family. If only 1 person had a marital status of "married", then enumerators were required to enquire about the spouse to ensure that correct information was recorded. In cross-checks with Question 10, for example, any person who was "never in union" could logically only have a response of "single" for Question 10.

Question 12: Economic Activity

162. The inclusion of this topic served a dual purpose. Economic activity status, especially for women, is a known correlate of fertility behaviour. At the same time, the information collected would address a critical need for regional and national estimates of the labour force, employment and unemployment.

163. Categories were included to permit some comparisons with the information in the 1970 and 1980 censuses. The most important changes were in the provision of a combined category for "Home Duties and Retired" and in the exclusion of "Not Stated".

Question 13: Occupation

164. Occupation referred to the type of work done during the week prior to enumeration, or, for those who did not work, to their last occupation. The occupational categories were based on the broad groupings of the International Standard Classification of Occupations. The codes assigned in GUYREDEM are reproduced in Appendix H.

165. No noteworthy issues arose in connection with this question. Efforts were made to have enumerators provide detailed information, whenever it was believed that the coders would experience difficulty in assigning the appropriate code for the type of work the respondent was engaged in. In cases of more than one occupation or job, respondents were asked to indicate which they considered to be the principal one. During training, enumerators were familiarised with the nature of the coding operation and the various codes to be assigned.

Question 14: Children Ever Born

166. This question was concerned with life-time fertility, i.e., the total number of children ever born alive to all women over 14 who were enumerated during the survey. It was necessary to make very clear to enumerators, and through them to respondents that the concept dealt only with live births and with every child born alive to females over 14. A live-birth was identified as one where some sign of life was exhibited, e.g. crying, heartbeats, or breathing, even if life ceased soon afterwards.

167. Enumerators were trained to be aware of the potential for omissions through difficulty of recall by respondents, deliberate concealment or misunderstanding of the concept "total live-births". Likewise, they were on guard against erroneous inclusions such as still-births, grandchildren, foster-children and step-children.

168. A variety of probes were used on this topic to ensure that respondents fully grasped the objective of the question. For example, a follow-up technique was to ask the respondent:

"So you've only had [] children? Nobody died, and all [] were born to you?"

Or, "All [] children are yours? None are grandchildren or nieces, and you didn't forget anybody who is not living with you now, or who died?"

Or, "So you never had any children? None at all? Like nobody ever died shortly after birth, or anything like that?"

169. It is remarkable that the instances where these probes encountered opposition from respondents were negligible. Likewise, it is noteworthy that in a few cases, respondents volunteered information on pregnancies as a means of clarifying the response given in relation to live-births.

170. Though a single question was used for topic 14, consistency checks with other questions (16a and 16b) meant that there was de facto a 3-pronged enquiry into life-time fertility. These additional questions permitted verification of the total number of live-births given in response to question 14.

171. No field collection problems were experienced with this question, though there are always difficulties in determining whether proxy responses generate completely accurate information,

particularly in households where the members are not closely related.

Question 15: Last Live-birth

172. This question was instituted to address the subject of infant mortality in the first year of life, as well as current fertility. It comprised 2 sections, the first seeking to determine whether the last live born child was still alive or not, the second seeking that child's birth date.

173. Enumerators were instructed to be very clear that the approach required information on the last child born alive. This child may not necessarily have been the last child still alive. This was very important in order to counteract any tendency for mothers to quickly refer to their youngest child who was alive and identify him/her as the last baby borne by her.

174. Again, follow-up techniques were instituted such as asking the respondent: "So you didn't have any children after the last one you said is alive? Nobody was born and died shortly after or lives somewhere else?"

175. Since this question required reference to birthdate, it was subject to the problems of recall referred to earlier. However, these were negligible and the general tendency was for most respondents to remember the birthdates of their last, as they did their first child.

Question 16: Child Survival

176. This question addressed infant and child mortality levels and was also used in the consistency checks referred to for question 14 on lifetime fertility.

177. Few field problems were experienced with this question which sought in part (a), the number of the respondent's children who were dead and in part (b) the number still alive. Clearly, the number dead + number still alive should equal the number ever born alive in question 14. Occasionally, enumerators had to point this out to respondents when discrepancies were detected. These errors invariably originated in identification of number of

children dead, especially if death had occurred a long time ago and there were more than 2 deaths to the mother.

Question 17: Children Abroad

178. The information from this question was used for indirect estimates of international migration by sex of the migrant. There were fears that respondents might be unwilling to provide information, or that they might give inaccurate responses on persons abroad, particularly if these persons were illegal migrants in some country. However, as far as could be determined, no problems were experienced in obtaining the desired information. In fact, a number of respondents came up with their total children abroad by a process which saw them make reference to the country of residence, e.g. 2 boys in England, 1 girl married in Trinidad, the last 2 boys studying in Canada. Only the last 2 girls still home with me and the old man.

Mortality/International Migration Modules

179. The information gathered from Modules IV and V are discussed in separate reports and will not be reviewed in detail here. Suffice it to say that contrary to fears regarding the willingness of respondents to provide the required information, these modules encountered few significant problems.

180. It is obviously important to have sufficient questionnaires prepared and available for any survey being conducted. Despite complete evaluations of overall cost, delivery time and reliability, the decision to have all questionnaires printed in Port-of-Spain was not without its problems. At the proverbial eleventh hour, information was received that the original contractor would not be able to prepare the documents.¹⁵ The time constraints were such that final documents had to be printed within one week of delivery of drafts to a new contractor (selected from a number of bids which were reviewed once again for cost and ability to deliver) in order to avoid delaying the starting date for interviews.

¹⁵ The possibility that this might occur had been raised about three weeks before its eventuality, but in the spirit of eternal optimism, efforts were made towards persuasion. It was a mistake not to have any immediate back-up options.

181. Printing the documents in Port-of-Spain meant that they had to be air or sea shipped to Guyana. To reduce the costs of such a venture, the questionnaires were transported as accompanied luggage by CELADE, or other U.N. staff members on mission to Guyana, or by personal contacts who happened to be travelling there. Despite the fact that the major carrier (1 of 2) between Port-of-Spain and Georgetown only permitted a maximum of 44 kilos of personal belongings per passenger/trip, it was possible to have the majority of documents transported to Guyana in this way. Only one special shipment of approximately 1,000 questionnaires was required throughout GUYREDEM, because they were needed at a time when no one could be found to take them into Guyana.

182. The sample design and selection required the interviewing of some 9,000 households, therefore a minimum of 9,000 questionnaires were needed. Additional documents were required:

- (a) for households with more than 11 persons;¹⁶
- (b) to provide a buffer against loss or damage in shipping to Guyana (the original plan was a major sea shipment but this was decided against because of the costs and difficulties in timing);
- (c) to have replacement supplies in case of water and/or other damage during enumeration;
- (d) to safeguard against enumerator spoilage through mishandling.

183. The number of extra questionnaires issued to each enumerator varied according to (i) whether listing had taken place or not (listing gave an indication of household size and the need for additional questionnaires for large households), (ii) the conditions under which the enumerator would likely be working and

¹⁶ The original intention (tested in the pilot project and judged to be a tedious and impractical option, particularly for work in rural and interior areas) was to prepare additional inserts for large households. These would be completed for the 12th person, 13th person etc. in the household and clipped to the original document to record information for these additional household members. Problems were experienced in the location of geographical identification on the inserts, prevention of loss in the field or office, and the carrying out of efficient key entry operations. The plan was therefore abandoned.

(iii) whether the enumerator could easily contact the supervisor or the Statistical Bureau for additional documents. All enumerators were issued with about 30% more documents than were projected for the area being enumerated.

184. One interesting feature of the final version of the GUYREDEM questionnaire merits mentioning in demonstration of its adaptability. During work in Region 9, one of three teams (designated here as Team A, B and C), scheduled to cover the area was unable to reach the targetted EDs because of flight unavailability. As a consequence, a decision was made for one of the two other teams (Team B) already in Region 9 to proceed overland to the relevant EDs. Unfortunately, the number of additional questionnaires issued as the complement for Team B was insufficient to cover the EDs assigned to Team A. As a practical solution, the questionnaires completed for small households - a negligible number of households contained more than 8 persons - were dismembered (by removing the staples) and the unused inserts removed. The questionnaires, now containing only the number of pages/inserts with information on respondents, were re-stapled and the unused pages/inserts were stapled to construct "information booklets". These documents were used in lieu of full questionnaires.

185. To ensure that enumerators maintained the practice of asking the GUYREDEM questions in the prescribed manner, the questions were copied on to a sheet of paper and attached to the enumerators' clipboards. With this set-up (corresponding to column 1 of page 2) and the "information booklet" (corresponding to columns 2, 3 etc. in Section 3 of the questionnaire), enumerators were able to cover the additional EDs.

186. Information on Region, Major Area, ED, Rural/Urban and Interview Date was common to all "information booklets" administered by one enumerator. The only other information necessary regarding the Identification Section of the questionnaire was in respect of Household Number, Number of Usual residents, MORT and MIGR. Only household number was inserted in the field and this was written directly on the top of each "information booklet". Information collected using "information booklets" was subsequently transcribed on to proper questionnaires in the Project Control Centre, at which time the Identification Section was completed fully.

X: ADMINISTRATIVE FORMS AND DOCUMENT CONTROL

187. It is self-evident that the questionnaire is crucial in the collection of information from those who have it (members of the households surveyed), its recording (directly on the document), and satisfying the needs of data users (after coding, data processing, tabulation and output). However, a number of other survey documents also played very important roles in the effective conduct of GUYREDEM operations.

188. The several manuals (Enumerator's, Supervisor's and Listing) spelled out the procedures and concepts for the field staff. Other documents and forms were designed to ensure on-going control of the entire survey process, to monitor progress on the various activities, and to obtain information when it was required. The following other documents (see Appendix I) were used in GUYREDEM and merit a brief comment on their utility and how they facilitated control of the survey and efficient undertaking of the several tasks.

- (a) Call-back Cards - these were used by the enumerator to identify the time when he/she would re-visit a household to conduct the interviews. It served to notify the householders that, in their absence (more specifically, the absence of a responsible adult member of the household), the enumerator had visited to collect GUYREDEM information and would be returning at a scheduled time.
- (b) Appointment Control Sheets - these were completed by the enumerator to serve as a reminder to keep appointments made with households and to reduce the possibility of scheduling two or more call-backs for the same time. If for any reason the enumerator; was unable to make a scheduled call-back, the supervisor could send another enumerator or visit the household him/herself.
- (c) GUYREDEM Supplies Record - this was used in Head Office to monitor, on a regional basis, the issue of ED maps, listing schedules, questionnaires and appointment cards to each enumerator. On the basis of this record and feedback from field supervisors, it was possible to determine the availability of supplies in the field.
- (d) Record of Questionnaires referred for Correction/Clarification - this was also used in Head Office and

was very important in accounting for the movement of "completed" questionnaires from the Project Control Centre back into the field.

- (e) GUYREDEM Enumeration Record - compiled in Head Office to indicate progress and the quality of work done by each enumerator. This information provided the input to a master wall chart maintained by the Survey National Director.
- (f) Enumerator's Weekly Listing Record - this was to enable supervisors to directly monitor the work of the enumerator in the field and to compile their own weekly lists indicating the progress of the enumerators under their charge. The column indicating "visited by/date" was to record visits made by the supervisor or Head Office staff during the week.
- (g) Supervisor's Listing Record - this was used by supervisors in conjunction with the previous form, to indicate their own work and that done by their team.
- (h) Listing Control Sheet - this was maintained in Head Office primarily to compare 1980 results with those being generated for GUYREDEM.

189. Despite the proven utility of these control documents, they were not all used for the entirety of the survey. This can be attributed to two reasons: (1) a lack of office staff to undertake many of the recording functions, and (2) the relatively small (manageable) size of the survey crew made it possible for GUYREDEM senior staff to closely and directly monitor the work of field personnel. By the end of the first few weeks of field operations, the Survey National Director and his two Field Area Co-ordinators had established direct communication with all field staff at their homes and were making periodic visits to monitor and evaluate their work. In addition, the note pads issued to supervisors became more frequently used for record keeping and obviated the need for completion of the several forms. With time, the enumerators also became more familiar with their responsibilities. The comprehensiveness of monitoring through use of these control forms was therefore relaxed somewhat, though not eliminated.

XI: PILOT PROJECT

190. The GUYREDEM pilot project was undertaken on May 29 and 30, 1986, after 8 days of intensive training for the prospective enumerators. While it was not a full-fledged mini-survey, the pilot project provided adequate opportunities for addressing and evaluating a wide range of technical, organisational and operational issues. These are summarised below:

- (a) Testing the questionnaire design, format, and workability;
- (b) testing the topics and concepts addressed by the questionnaire, and the appropriateness of the sequencing and wording to both enumerators and respondents;
- (c) assessing the attitudes and responses of householders to the personal and perhaps sensitive questions in the proposed survey;
- (d) affording enumerators an opportunity to administer the questionnaire in real-life situations, as opposed to the mock, classroom sessions during training;
- (e) evaluating the clarity of the enumerator's manual and the instructions contained therein;
- (f) evaluating the accuracy of ED maps and the ability of enumerators to use them effectively (e.g. in planning routes and ensuring complete coverage);
- (g) assessing the work ethic of enumerators;
- (h) evaluating the interviewing technique and performance of enumerators, to determine their prospects for successfully completing the assignments. In particular, attention was paid to their abilities to comprehend the concepts and ask questions in the prescribed manner, establish good rapport, record information quickly, neatly and accurately, and leave a good impression with respondents upon completion of the interviews. There were also some instances which permitted observation of the abilities of enumerators to respond to difficult situations encountered during the interview. This enabled the discussion of techniques for dealing with such eventualities in the full national survey;

- (i) eliminating poor performers and making the final selection of enumerators for the full national survey;
- (j) determining what, if any, additional training may have been required;
- (k) determining how long, on average, it would take to administer the questionnaire, in order to establish reasonable work-loads and the final scheduling of the full national survey;
- (l) evaluating the utility of the international migration module (section 5 of the questionnaire);
- (m) reviewing the office procedures for dealing with completed questionnaires and other survey documents;
- (n) making use of the pilot questionnaires to test the CELADE-designed computer data entry and verification routines;
- (o) testing the processing and tabulation programmes; and
- (p) evaluating the quality of the data collected.

191. Financial constraints influenced, if not dictated, what, how, and how much could be undertaken during the pilot, which suffered the serious misfortune of coinciding with a major fuel shortage in Guyana. Much time was lost in securing transportation; costs were exorbitant; several enumerators experienced problems in getting to work; survey administration personnel likewise had difficulty in moving from place to place in order to monitor the work of enumerators. Under these circumstances, the prudent decision was not to attempt coverage of non-coastal, difficult-access areas for the pilot project. According to plans, in the initial stages of the full national survey, enumerators were to function as members of teams which would be operational in their regions of residence. During the pilot, there was no attempt to evaluate this a priori decision, because of the costs and inconvenience of covering all 6 regions from which enumerators were drawn. In fact, the unpredictability of transportation from the viewpoint of costs and availability threatened to undermine the pilot project and the entire

survey.¹⁷ Notwithstanding the overall difficult transportation situation, sufficient visits were made to all trainees in the field to enable proper observation and evaluation of their performance.

192. It should be noted that in planning for the pilot project, CELADE's experiences (both satisfactory and unsatisfactory) in undertaking retrospective demographic surveys in South and Central America over the last decade were considered instructive and reduced the need for a complete, detailed, and repetitive testing of procedures and alternatives. Given the costs of such a venture and the tight budget situation, there was hardly any possibility of a full-fledged test. However, it was necessary to ensure that the approaches were appropriate to the local situation. There was also some evaluation of topics and procedures which it was felt did not require detailed testing, since they had been satisfactorily implemented in recent censuses and other surveys in Guyana.

193. There was ample time and every use made of the opportunities to conduct informal tests regarding content, wording and receptivity of the public to GUYREDEM. This was particularly true in preparation of the questionnaire. However, the pilot was the first and only formal trial of the questionnaire and the total survey concept and provided empirical evidence for the evaluation of both.

194. Twenty-five EDs were chosen for the pilot test; see Appendix J. The choice was made from among those EDs not selected in the sample for the full national survey and the number - 25 - allowed the assignment of one ED to each trainee-enumerator.¹⁸ All EDs were on the coast and in Region 4, i.e., Georgetown and nearby East Coast and East Bank Demerara areas; indeed, they were all within a 12 mile radius of Georgetown. Thirteen were in rural areas and the remainder in the city and suburbs of Georgetown.

¹⁷ It was unrealistic to incorporate the exorbitant and abnormal transportation costs into the programming of field operations. With optimism as a guide, the assumption was made that the transportation difficulties would ease and costs would return to normal in time for the full national survey. These assumptions were borne out.

¹⁸ Four persons were dismissed during training and one other immediately after the pilot project.

Three areas could be considered suburban. In some areas, the majority of residents were of East Indian descent; in others they were Negro/Black. Thus both urban (54% of the households interviewed) and rural areas were adequately represented in the pilot sample, as were the 2 major racial groups in Guyana.

195. During the pilot project, all 25 trainees worked as enumerators. Each was assigned an ED to, first of all, list every household in the area and secondly, enumerate a sample comprising a minimum of 14 of the households listed. This sample was systematically selected by the trainers, with each of the listed households in a given ED having an equal probability of selection for interview.

196. Assistance was provided in orienting enumerators to the areas and identification of their boundaries. Each trainee was issued with sufficient supplies and either taken or sent into the relevant EDs. They were later met in the field by a CELADE/Statistical Bureau monitor. These actions afforded the opportunity to see whether the process of, and training for, carefully planning the enumeration route was useful and whether enumerators could be easily located in the field.

197. All trainees were monitored closely during the pilot exercise and performance on some interviews was observed. Visits were made by either the Project Co-ordinator, Survey National Director, or other CELADE/Statistical Bureau staff. The questionnaires were reviewed in the field by these observers/monitors and where necessary, suggestions were made for improving the collection process.

198. At the end of each day, all enumerators returned to the pilot project control centre (first, a hall rented specifically for the pilot project training, then later, the Statistical Bureau office). There, the questionnaires were again reviewed and the enumerators de-briefed by the CELADE/Statistical Bureau monitoring and instruction team. This exercise involved a discussion of problems encountered and the identification of possible solutions.

199. The size, structure and layout of the questionnaire presented no handling, data collection or checking problems for field staff, office coders or data entry operators. In fact, the pilot experience dismissed major misgivings about the questionnaire design and workability. Not only did the format work very well but it enabled the survey team to make full use of clipboards which were obtained for the exercise.

200. Complete questionnaires were received for 334 households. The information was data entered and edited using routines developed by CELADE. One of 2 IBM -XT micro-computers provided to the Statistical Bureau under the project was utilised for this purpose. Tables were generated using the SL-MICRO software package and this served as the basis for evaluation of the data collected.

201. Perhaps one of the most critical needs recognised during the pilot was in the areas of cartography, map reading, identification of boundaries and orientation to EDs. A few of the ED maps were simply outdated; some had been poorly compiled; on several, the choice of boundaries was poor, unrealistic and difficult to identify in the field. However, the cartographic situation was not judged to be hopelessly inadequate, simply one that required additional attention.

202. Resulting from this situation, much emphasis was placed on map-reading and considerable assistance was given in the field-especially for the listing exercise - to enable enumerators to clearly identify the boundaries and geographical coverage of the EDs selected for the full national survey. Once the ED boundaries were identified, listing and enumeration proceeded without major hitches.

203. The experiences and insights gleaned from the pilot project also guided final decisions and refinements of procedures. A few questions were re-worded and re-ordered; concepts were even more clearly defined; data editing routines and editing rules were revised to guarantee even greater efficiency; and finally, field logistics and execution plans were reformulated to take greater cognisance of local environmental and socio-cultural/economic conditions.

204. As a direct consequence of the pilot project, the entire survey crew acquired field experience which was to serve them well throughout the exercise. The pilot project also played an invaluable role in instilling confidence and an even more positive disposition in the project staff regarding the success of GUYREDEM. The receptivity of the public to the survey, and their willingness to co-operate in the provision of information boosted staff morale and generated much-needed enthusiasm for and commitment to the project. This was especially important because of the coincidence, noted earlier, of the pilot project with the transportation and electrical power problems throughout most of Guyana. The non-negative reaction of the public to GUYREDEM was welcomed by the administrative team. It also served to motivate

most enumerators to undertake the tasks with the required spirit.

205. No persons were appointed to supervisory positions until the end of the pilot. Based on performance during the pilot, no one was deemed suitable for the position of Field Co-ordinator and only 3 positions of supervisors were filled from among the trainees. Again, because the relevant attributes (for example, maturity, ability to lead and motivate) were not discerned during training or the pilot, no supervisors were appointed for the Region 2, Region 3 and Region 5 based teams. Instead, the decision was to combine Region 5 with 6 under one supervisor and to have the Statistical Bureau staff perform direct supervisory functions in the other two regions.

XII. FIELDWORK

Organisation:

206. Overall responsibility for field operations rested with the Survey National Director, with technical and administrative support from the Project Co-ordinator and two Field Area Co-ordinators who were members of the Statistical Bureau staff. Fieldwork was to be undertaken in a number of stages, commencing in the regions where enumerators resided and enumeration teams were based. Upon completion of work in these regions, the teams would be re-deployed to the remainder. Work was to be completed in the relatively easy-access regions before any attempt was made to tackle the remaining more difficult ones. As opposed to the work in the coastal areas, that in the hinterland regions would be conducted on a team basis, with teams of varying sizes working under the supervision of a senior member of the GUYREDEM team.

207. The anticipated completion date for coastal areas was mid-October 1986, while plans called for completion of field operations in the rest of the country by mid-December. It was envisaged that Regions 2 and 10 would be completed well before the others. The 2 teams from these regions could then be re-assigned to those other areas which were still being enumerated.

208. For a variety of reasons, this schedule had to be modified. The result was that in the latter stages of fieldwork, enumeration was proceeding simultaneously in both the coastal and interior areas and the completion date was not reached until January 1987.

209. Though enumerators were resident in 6 regions, the enumeration plan envisaged the organisation of the entire complement of field workers into 5 teams by combining Region 5 and 6. The following indicates the staffing situation at the commencement of GUYREDEM fieldwork.

Region	EDs selected	Enumerators assigned	Supervisors assigned
1	11	-	-
2	25	4	-
3	50	2	-
4	102	3	1
5 & 6	80	5	1
7	9	-	-
8	3	-	-
9	14	-	-
10	23	3	1
Total	317	17	3

Implementation:

Listing:

210. Field operations commenced with the listing exercise, covering Regions 2, 3, 4, 5, 6 and 10. Listing was conducted in these areas over the June - August 1986 period, simultaneously with evaluation of the pilot project and other preparations for the full national survey. Due to access and internal transportation difficulties and the fact that no enumeration teams were based in Regions 1, 7, 8 and 9, the strategy was different in these four regions, with the selection and enumeration of sample households being undertaken during the same visit. This approach¹⁹ was economical in travel, subsistence and overall field costs.

211. For every selected ED, listing involved the sequential numbering of all households, identification of all buildings and

¹⁹ This strategy was also implemented in a few difficult-access areas of the regions where listing was done.

occupied dwellings (by means of an "X" on the ED maps),²⁰ and the collection of basic information on the household (see Appendix I). Only occupied dwellings were assigned both a building and a household number, since only these contained households.

212. The first few days of listing were devoted entirely to locating the boundaries of the EDs and ensuring that the enumerators and supervisors were familiar with the territory and comfortable with their assignment. All members of the Statistical Bureau Staff assigned to GUYREDEM fieldwork were involved in this activity.

213. During the listing phase, two noteworthy problems were encountered. The first pertained to over-/under-estimation possibilities and was outlined in Section VI. This issue is addressed in further detail in the technical paper on the sample design and selection.

214. The second problem pertained to cartography. A review of the maps for areas falling in the sample had revealed that some could pose difficulties for the field staff, because of abstract and hard-to-establish boundaries, such as watersheds. However, the costs of meaningful updates (most of these maps were for interior areas) were prohibitive and could not be accommodated within the project budget. Consequently, no major cartographic revisions were undertaken. In lieu of this, the Bureau's cartographic staff and GUYREDEM senior personnel accompanied enumerators into all EDs where it was likely that difficulties would be experienced in orientation and identification of boundaries. Once the field staff were acquainted with the geographic limits of the EDs to which they were assigned, this and subsequent stages of fieldwork were conducted in an effective fashion.

215. As soon as work was completed in any particular region, the team was reassigned to assist in another area. Thus by late June, several teams were working outside their region of residence. Most enumerators had been re-assigned to Region 4 because of the large number of EDs to be listed there. The only area of concern was the depletion of the field staff by four persons - three through resignation and one as a result of dismissal. Three of these persons had been based in Region 4.

²⁰ 150 copies of maps had to be made so that only duplicates were used in the field.

216. Completed listing schedules were returned to the Statistical Bureau to be used in selecting the sample households for each ED. Four copies of the lists containing households selected for interview in each ED (selection lists) were made. These contained name of household head, household address, household number and building number. Though the listing schedule recorded number of usual residents in the household, this information was not included in the selection lists, but was retained for Office Use only. Information on number of usual residents could and did serve as a means of determining the accuracy of information collected during the interview phase. By retaining it in the office (i.e., excluding it from the selection lists used by enumerators), the temptation for enumerators to attempt a matching of households on the basis of size recorded during the listing was minimised. Additionally, in the case of absent households, the information was obtained from neighbours, and therefore may or may not have been complete and accurate.

217. One of the four copies of each selection list prepared was issued to the enumerator assigned to the ED. Another was issued to the supervisor and the other two were retained for Office Use. This strategy made it possible for the supervisor, or GUYREDEM senior personnel, to visit the enumerators in the field, or to do spot-checks or re-interviews.

218. During listing, interviewers were required to notify householders of the possibility of a return visit to conduct more detailed interviews, with collection of information on all household members. This measure prepared the householders for possible enumeration during the full national survey and provided a natural entree for the enumerator, if in fact the household was selected for GUYREDEM interviews. The introduction by enumerators could be and was briefer than in a first-time contact. The following actual example is illustrative: "Auntie, remember I visited you a few weeks ago in connection with a survey we are conducting at the Statistical Bureau?" [Respondent acknowledges "Yes, son"]. "Well your household was one of those selected for the follow-up interview, so I'm just going to ask you a few more questions which shouldn't take up too much time".

Interviews:

219. Household interviews commenced in the last week of August 1986 in all regions where listing was done. By this time, the enumeration crew numbered 17 persons, having lost three persons (including the supervisor) from Region 4 and one from Region 2.

220. Though consideration was given to augmenting the depleted field staff, a careful review of this issue resulted in a decision to proceed with the existing complement of staff and undertake even closer supervision and monitoring from Head Office. Among the reasons for this decision was the potential difficulty in finding suitable persons and the lack of resources and time to train them.

221. Before enumerators commenced the actual interview of persons in sample households, there was a 2-day refresher session with the entire GUYREDEM team, including senior Bureau staff who would be supervising office operations, and those who would be actually dealing with the receipt, checking and coding of questionnaires. This session was structured to ensure that the enumeration teams were still fully cognisant of the requirements of GUYREDEM and to familiarise them with the modified questionnaire, consequent on the changes made after the pilot project.

222. GUYREDEM actively sought the institution of field measures (as detailed in the Enumerator's Manual) regarding the confidentiality of the information collected, despite the fact that the information was not judged to be too personal nor highly confidential. In this connection, there was a preference for conducting interviews one-on-one (interviewer and respondent), particularly among females over 14. However, this was only a preference and not a rigorous requirement as has occasionally been argued as a strategy for ensuring confidentiality and honesty in responses to fertility questions. Particularly in interior areas and among other rural households, some interviews were "family gatherings", in which the head of household would provide information with the assistance of his/her spouse and occasional reference to their offspring for help in recalling events. Thus even in respect of something as critical as confidentiality, there was need to be flexible and practical in the adoption of field measures to facilitate the collection of the required information.²¹

223. To conduct interviews, each enumerator was issued with the following materials:

- (a) Sufficient questionnaires to permit enumeration of

²¹ It would have been paradoxical to insist on one-on-one interviews and yet permit the provision of information (in the case of absent householders) by persons other than those to whom the information was pertinent.

all households selected in the sample for that ED;

- (b) record keeping forms documenting daily travel expenses, number of interviews completed, visits made by the supervisor or GUYREDEM senior staff;
- (c) call-back (appointment) forms to be left with households where it was not possible to conduct the interview;
- (d) pencils, erasers and other stationery. Clipboards and briefcases/satchels had been issued during the pilot project.

224. Hours of work for the enumeration teams were not fixed, although it was expected that each person would complete at least a 40-hour week. It was made clear to all field staff that early morning, lunch-hour, afternoon/ evenings and weekends were preferred working hours, since there was a reasonable surety of catching household members at home during these periods. The fact that the enumerators were, for the greater part of the time, working in districts close to their homes facilitated late working hours in the field.

225. Despite the commendable efforts of most enumerators to ensure completion of the required interviews by the projected deadlines, a series of problems arose which resulted in an extension of enumeration to January 1987. The most noteworthy were:

- (a) Attrition of field staff as a result of resignation and dismissals;
- (b) deliberate attempts at time wasting by a few persons in order to prolong the period of enumeration and secure employment for a longer period. This was in spite of guarantees given at the time of hiring that enumerators hired for GUYREDEM would be considered members of the Bureau staff until at least the end of December 1986;
- (c) inclement weather. Several days saw incessant rainfall which slowed considerably and in a few cases curtailed field work;
- (d) call-backs. A great deal of time was lost in locating adult members of several households in order to conduct the interviews. Nonetheless, this routine was felt to be necessary to ensure as complete an enumeration of

the survey population as possible;

- (e) the difficulties of access to and work in interior areas, coupled with the need for careful scheduling but unpredictability of flights.

226. Region 10 was the first area to be completed and the entire team transferred to Region 4 at the beginning of October 1986. Two weeks later, work in Region 2 was completed and though it was intended to transfer this team to assist in Region 4, there was a reluctance of its members to shift region of operation. As no compromise could be found, the enumeration team was reduced by a further 3 members. At the end of October and on schedule, the team assigned to Regions 5 and 6 completed their tasks and arrived in Georgetown to prepare for work in the hinterland. Among the coastal and easy access regions then, only Regions 3 and 4 were incomplete at this juncture, with about one-third the work in Region 4 remaining. The field staff totalled 9 enumerators and 2 supervisors, when final plans were laid in place for the enumeration of interior areas.

227. There was no consideration of delaying interior fieldwork until work in the coastal regions was complete. Not only was it essential to take advantage of the reservations secured on Guyana Airways for interior travel, but cognisance had to be taken of the advent of continual, torrential rains in interior areas towards the end of the year, making movement difficult and sometimes impossible.

228. After a review of these factors, a decision was made to involve all available project personnel in actual enumeration in difficult-access areas. The schedule and organisation of activities were consequently modified to reflect the involvement of the Project Co-ordinator, Survey National Director and Field Area Co-ordinators, as leaders and/or members of enumeration teams for interior work. These actions enabled some members of the regular field staff to continue working towards the completion of Regions 3 and 4.

229. Despite adverse field conditions, work in interior areas progressed according to schedule. Flight cancellations created problems; inability of aircraft to land because of bad weather created others; flexibility had to remain paramount in the deployment of teams for interior enumeration because of the unpredictability of a number of elements. By mid-December, however, only a few scattered EDs remained to be enumerated and by the end of 1986, as projected, it was not necessary to

maintain a full complement of field workers. Only 3 enumerators and 1 supervisor were retained to assist the permanent Bureau staff in the completion of fieldwork, which was achieved in January 1987. Two of these persons were subsequently retained as permanent members of the Statistical Bureau staff.

XIII. QUALITY CONTROL

230. The intent of quality control was to ensure that data were as complete, consistent, and accurate as possible. Measures to this end were put into place at the information collection stage (field checks), office review stage (clerical checks) and data capture stage (machine checks).

231. The field or primary checks were undoubtedly the most important, since they were designed to avoid the inconvenience of having enumerators return to households to obtain missing information, or to clarify apparent inconsistencies. Any return to a household ran the risk of encountering hostility or non-cooperation from respondents, particularly since such re-visits could be perceived as unnecessary burdens. It was therefore extremely important for enumerators to perform a number of completeness and consistency checks, before they left the household and to always be on the look-out for conflicting or inconsistent responses. These checks were detailed on pages 62 to 65 of the Enumerator's Manual and pointed out during training and observation in the pilot and early stages of the full national survey.

232. After three weeks of GUYREDEM interviews, the entire enumeration team met for a one-day review session at which time errors were pointed out in their work, problems were discussed and suggestions for improving quality were made. Supplementary written guidelines for efficiently undertaking the tasks were also issued to each member of the field team.

233. As a further measure towards quality control, enumerators were visited and their work monitored in the field at least once every other day in regions with supervisors and at least once a week in those where supervision was undertaken from Head Office. Any errors detected were immediately brought to the attention of the enumerator. In situations where enumerators reported vacant or absent households, supervisors verified that this was indeed the case.

234. Head Office staff also visited each of the coastal regions at least thrice a month to ensure that supplies were adequate, no significant problems were being experienced, and that the work was of good quality and being conducted according to plan. In addition, spot-checks were made by visiting and sometimes re-interviewing randomly selected households, in order to ensure that (a) only eligible households and individuals had been interviewed by the enumerator, and (b) the information provided to the enumerator was complete, accurate and had been recorded correctly.

235. Though these activities involved a substantial amount of travel each month and placed a considerable strain on the small Head Office staff assigned to GUYREDEM fieldwork, they were undertaken in a positive fashion and without hesitation.

236. Supervisors, or any member of the enumeration team could also contact the Survey National Director or one of the Field Area Co-ordinators by telephone at home. In addition, they could reach the Chief Statistician or other permanent Bureau staff during normal working hours, to discuss difficulties. Several of the field staff exercised this option, with the result that there were hardly any delays in the resolution of pressing problems.

237. Upon satisfactory completion of an ED, the completed questionnaires, ED map and selection list were collected by either the supervisor or a member of Head Office staff. In the case of the former, the supervisor was required to check all questionnaires for completeness and accuracy. Not only were the questionnaires themselves checked to ensure that the information relevant to each household member had been recorded, but supervisors were required to check each document against the information on the selection lists and to compile a summary of number of persons enumerated in that ED. If everything was in order, then the supervisor would sign-off the questionnaires and listing schedule in the space provided. Bureau staff carried out the same tasks both in the field and in the office.

238. The Statistical Bureau office was the project control centre, though some operations - e.g. early phases of data processing, meetings - were at times carried out at the UNDP offices in Georgetown. There were no regional offices to which enumerators were required to report. Field staff went directly from their homes to the districts of assignment. Sometimes they met at the supervisor's home for review sessions, but more often than not, they were met in the field by the supervisor. This process was continually monitored by Statistical Bureau staff to

ensure that enumerators and supervisors were performing to the required standards.

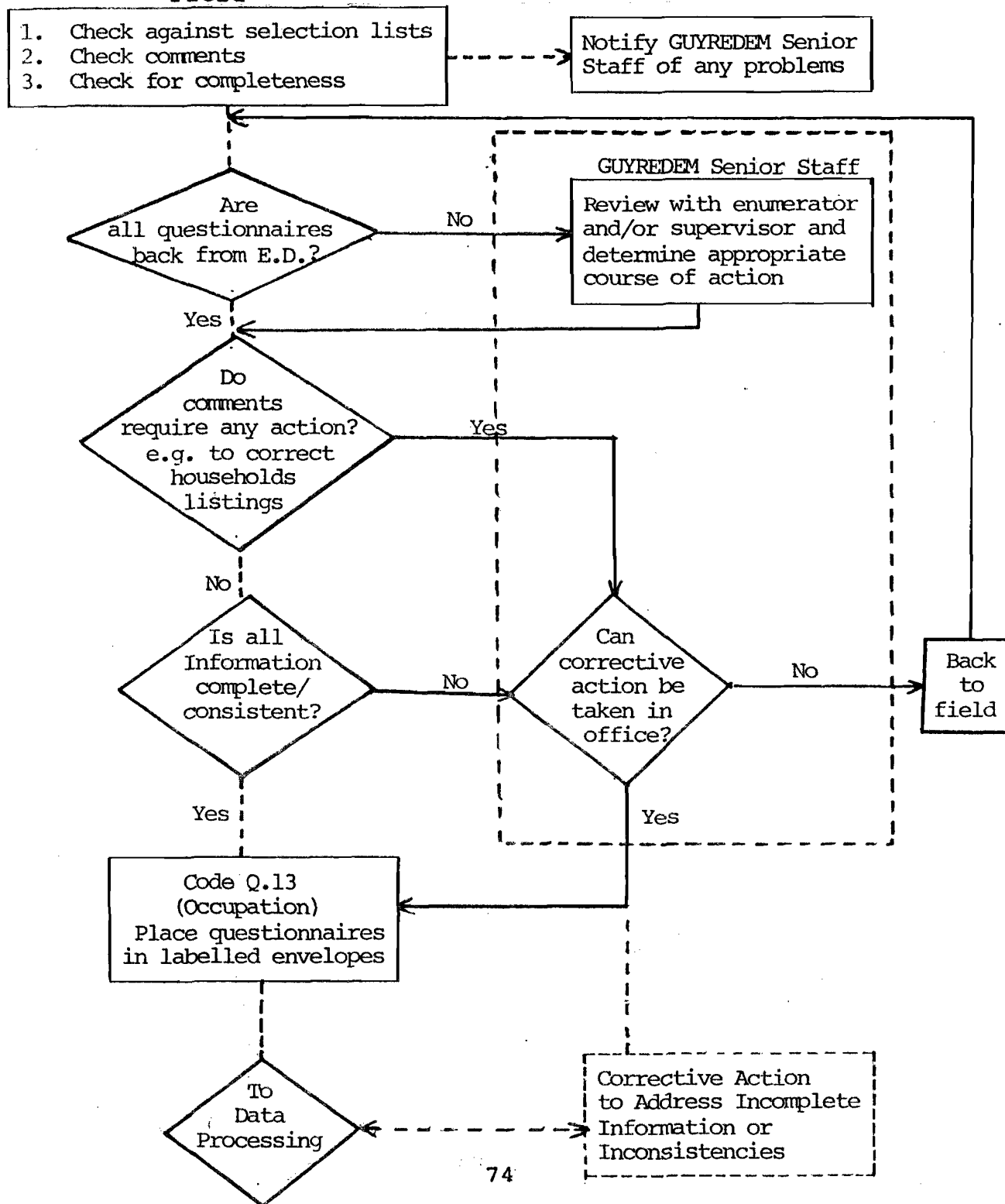
239. Completed questionnaires for each ED were returned to the Statistical Bureau. Upon receipt of these documents, a record was made of information which was used to monitor the progress and efficiency of each enumerator. This "Record of Work" register contained information on date the ED was assigned to and completed by the enumerator, number of selected households, those interviewed and, where applicable, reasons for non-interview. In addition, comparisons were made between number of persons enumerated and those expected, on the basis of the ED listings. If non-response rates were found to be high (10% or more), follow-up visits were made to non-response households by either the supervisor or Bureau staff. If a pattern of above-average non-response rates was detected in the work of any enumerator, the supervisor or Central Bureau staff would attempt to determine the cause, as a prelude to corrective action.

240. The questionnaires received from the field were also checked again for omissions and errors. As far as practicable, those containing errors and omissions were sent back into the field for completion. However, detailed secondary scrutiny of documents in the field and the involvement of GUYREDEM senior staff in quality control operations, both contributed to the need for this being negligible. In a few cases, after reference to other information on the document indicated that remedial action was straightforward and presented no problems, the resolution of errors was done by senior Bureau staff at the machine editing stage. For example, if a household had seven children of the same parents, and race was omitted for one child, it was reasonable to assume that the missing information was consistent with that of the siblings. Similarly, if the information on sex of a respondent was missing, then it could have been determined with reasonable accuracy through reference to name or fertility information. Apparent or even indisputable errors in the information were not corrected by coders, whose only intervention in the data portion of the questionnaire was for coding of Question 13 (Occupation).

241. At the end of the office checking and coding procedures, the questionnaires were sequentially ordered by household number (from lowest to highest) and a manual count was made to provide a master-control figure for checking that all questionnaires were key-entered during data-processing operations. Finally, the completed and checked questionnaires were placed in labelled envelopes for data processing. Completion of the labels (see

Appendix I) served to monitor the flow of completed documents in the office. Figure 4 presents an overview of the flow of questionnaires from the field and through office operations.

Figure 4. Actions on Receiving Completed Questionnaires From the Field



XIV. DATA PROCESSING

242. The Statistical Bureau has, over the last 15 years, been contracting its routine data processing operations to other agencies, such as GUYMINE, IBM and NDMA. Census processing, likewise, has not been undertaken by the Bureau, but by agencies outside the country. The same is true for the processing of survey data, such as the Rural Farm Household Survey and the Guyana Fertility Survey. Invariably, long delays were experienced in obtaining tabulations and it was considered essential, if maximum benefit was to be derived from GUYREDEM, for the data to be processed quickly and released in a timely fashion.

243. Several data processing alternatives were examined to identify the most practical, cost-effective and reliable option. Three were given major consideration: (i) processing the data at the NDMA, (ii) processing outside the country, or (iii) acquiring computer equipment for the Bureau to do the processing, with assistance, if necessary, from CELADE. The last was the most attractive option.

244. In October 1985, a mission was mounted by CELADE to examine the merits of this option through discussions with officials of the NDMA and the Statistical Bureau. The result of this mission was a strengthening of the case for procurement of 2 micro-computers to effect rapid data entry, editing and the production of tables. A major factor in favour of this decision to acquire micro-computers was that, on completion of GUYREDEM, these machines would become the property of the Statistical Bureau and available for further demographic work (particularly in the area of vital statistics and migration). It was felt that this action would ultimately ease the dependence of the Bureau on other agencies in or outside Guyana for the production and timely release of data. Further, it would enhance the Bureau's capacity to respond to specific data requests of users.

245. With the emergence of a strong case for the acquisition of micros, 2 IBM-XT machines were ordered by CELADE in November 1985, for use on GUYREDEM. This equipment arrived in Guyana in a number of consignments between February and May 1986. Because of the lack of safe and adequate storage at the Statistical Bureau, the machines were stored at the UNDP premises.

Systems Installation and Testing

246. In June 1986, a CELADE mission was undertaken to assemble the computer equipment, install software systems and train Guyanese personnel in their operation. As a result of the non-arrival of one IBM-XT processor, it was possible to fully assemble only one machine. However, all hardware peripherals for both machines were tested and additional problems were discovered. At the end of June 1986, only one IBM-XT microcomputer, without a hard disk and with only 576K of main memory, was operational.

247. The equipment which did not work was returned to the suppliers for replacement. In September 1986, two new hard disks arrived in Guyana. When tested, one failed and had to be taken out of the country for repair. By the end of October 1986, however, these equipment problems had been resolved and both micro-computers were functioning. The hardware configurations were as follows:

1. Machine A
 - 576K main memory
 - One 20 megabyte hard disk
 - One 360K diskette drive
 - One 1.2 megabyte diskette drive
2. Machine B
 - 576K main memory
 - One 20 megabyte hard disk
 - Two 360K diskette drives

248. In January 1987, additional memory chips were supplied by CELADE and installed to increase the main memory of both machines to 640K. Appendix K indicates the total hardware and peripherals which were provided to the Statistical Bureau as part of the GUYREDEM project.

Training for Data Processing

249. With only one machine functioning in June 1986, the programme for testing of software, conducting the necessary training and providing hands-on experience for project personnel would have been difficult, during the relatively short duration of the CELADE mission to Guyana. A solution was found through borrowing a second micro-computer from the UNDP in Georgetown. This machine was similar to the one which had been ordered but had not arrived in time for the CELADE mission.

250. In spite of recurrent power outages, training courses were successfully conducted in June 1986. Persons selected for training were drawn from the Statistical Bureau, NDMA, UNDP, Guyana National Energy Authority and SPC. Sessions focussed on the operation and use of micro-computers and selected software packages. All data entry operators at the Statistical Bureau participated in these courses, as did the statisticians who were already working on GUYREDEM. Their training included specific instruction and hands-on experience with the DATA ENTRY and CHEKEDIT procedures for this survey. Questionnaires from the pilot project were used in this activity.

251. Refresher training sessions were conducted in October 1986, for the data entry staff of the Statistical Bureau only. These sessions were held just before data entry for the full national survey commenced. The final questionnaires from GUYREDEM were used in this exercise. The national counterpart identified as the technical resource person for GUYREDEM was involved in assembling the machines and in all aspects of both training exercises.

Data Processing Environment

252. At the time of the complete assembly of the micro-computers in Guyana, the facilities at the Statistical Bureau were not adequate for housing them. The office in which other data entry equipment was located was already extremely congested. Since the Bureau was expecting to change premises in the near future, it was practical to await the move to the new location before establishing the necessary infrastructure to house the project micros and peripherals. In the interim, as a short-term measure to facilitate the training of personnel, all equipment was assembled at the offices of the Guyana State Planning Commission. Subsequently, and as another interim measure, the machines were removed to the UNDP premises where an office was allocated to data processing operations for GUYREDEM. In the latter part of January 1987, after two new air-conditioners were acquired by the Bureau, the computers were moved from the UNDP premises to the Bureau's offices.

Programming and Data Entry Operations

253. Two systems were utilised during GUYREDEM. These were (1) the CELADE-developed CHEKEDIT and CONTROL system, and (2) the Computer Keyes DATA ENTRY system which was adapted by CELADE to address GUYREDEM's needs. Data from the GUYREDEM pilot project were used during tests of the data processing systems. A few

programming errors were revealed during testing and were corrected. A number of edit rules for the CHEKEDIT and CONTROL system were also prepared on the basis of the questionnaire actually used for the pilot project.

254. Data from the pilot project were key-entered by operators from the Statistical Bureau. The inclusion of data-capture codes directly on the questionnaire (for all questions but one) eliminated one step in the transmittal of information from the respondent to the machines for data processing and output. In order to ensure the adequate reflection of data processing considerations in the questionnaire design, the national technical adviser to GUYREDEM and CELADE data processing personnel reviewed the various aspects of the questionnaire preparation and the edit rules for the data.

255. After processing, the pilot project data were analysed by CELADE personnel and the Survey National Director during a mission made by the latter to CELADE headquarters in the early part of July 1986. After analysis of the data and finalisation of the questionnaire for the full national survey, the relevant modifications to the CHEKEDIT and CONTROL and DATA ENTRY systems were made by CELADE personnel in Santiago. The final systems were installed and tested in Guyana in October, 1986.

Data Editing and Verification

256. A number of machine edits were carried out on GUYREDEM data to verify completeness, accuracy, consistency and internal logic. Some of these edits and ranges of validity (or more accurately, data acceptability) are based on common-sense and were designed as an automated complement to the manual edits and consistency checks performed in the field and at Head Office.

257. Edits are statements which determine the acceptability of data. Based on pre-determined edit rules, data were deemed to be either valid or in conflict. Valid data were accepted; data in conflict were corrected, primarily through a process of deduction on the basis of other responses on the questionnaire. There was no automatic correction or imputation action based on matching records or pre-determined input values. Every situation requiring corrective action was reviewed individually.

258. Data entry, complete verification and the various editing routines were undertaken by Statistical Bureau staff using both project machines. All operations were done on an ED basis, such

that a single file was created for each ED. Data entry was undertaken for each ED right after completed questionnaires for the entire area had been received in Head Office, checked and Question 13 coded by the appropriate staff. For each questionnaire, one record was created for geographical identification, another for the information pertaining to each member of the household, and two others for information on the household (specifically the mortality module and the migration module). There was thus a total of 4 record types for GUYREDEM.

259. In an effort to gain speed in data processing operations, keying took place in the morning sessions and verification in the afternoon. All data entry staff at the Statistical Bureau were involved in these operations on a rotational basis. Data editing, i.e., structural checks and intra-record edits, were completed outside normal working hours. These edits were usually done on the same day that the data from the ED were key-entered and verified. This approach, provided there were no power outages, realised the completion of an average of 8 to 10 EDs per day.

260. Data editing was a 2-stage process. First, structural editing was done on all complete questionnaires within an ED. Errors detected during this process were corrected using the DATA ENTRY system which permits the insertion or deletion of records to rectify key-entry errors. The second process checked the consistency of information within each person record and the general information pertinent to the particular household (including mortality and international migration). Records with errors were displayed on the computer screen and could thus be immediately corrected and re-checked.

261. A number of problems were encountered during the editing stage. The most serious of these was the data capture of a person's date of birth as occurring after the date of interview. In such cases, error messages were written into the log file but did not appear on the screen; even more problematic was the fact that the error message in the log file did not identify the problem record. The solution to this situation involved the scanning of each record in the file and undertaking comparison of date of interview with date of birth, a correction process which, needless to say, was very time consuming and frustrating.

262. After corrections were made to records and a re-check routine done on them, it was assumed that the data file was completely error-free. No additional editing routine was undertaken to guarantee this. One consequence of this was that there were instances of some files containing record types other

than the four identified above.²² The discovery of this type of error during later processing routines led to a decision to re-edit all data files, paying careful attention to the information displayed on the screen before records were accepted as valid. No record was maintained of the types of errors encountered, either in the field or in data processing. This, however, is a procedure which is highly recommended, since it serves to provide a thorough and complete audit trail on the various phases of data collection and the generation of survey information.

263. After the edit routines, all data were transferred to a single machine where EDs were batched to create "batch files", reflecting what was deemed to be a manageable number of EDs for each administrative region in the country. These "batch files" could then be conveniently utilised by the SPSS software package to produce SPSS system files for tabulation and analysis purposes.

264. There were 4 stages for backing-up data to protect against loss. The first occurred daily and resulted in a duplicate copy of the key-entered raw data files, including records with possible error. These were backed-up on an ED basis. The second also occurred daily, after the ED files were structurally edited and processed through the inter-record checks. The third was undertaken when the EDs were batched. Finally, it was intended to back-up the SPSS system files when they were created. However, problems of disk space militated against this option.

Tabulation Procedures

265. CELADE also worked closely with the Statistical Bureau and the SPC in development of the tabulation procedures for GUYREDEM. These procedures were based on a set of preliminary tables agreed upon and were tested (using SPSS) on a subset of the actual data from the full national survey. A few minor problems were detected during these tests and corrected. After modifications, these procedures were implemented to produce the preliminary tables which provide the first insights into the results of the survey.

²² The DATA ENTRY system assumed that the 4 record types defined for GUYREDEM (Geography, Person, Mortality and Migration) were all that the system would recognise. However, since the system had wider applicability and allowed for a maximum of 9 record types, it was possible for additional record-types to be introduced through key-entry error.

266. All survey data were key-entered and edited by the end of February 1987. By the first week of March, the files were batched and ready for the tabulation process. By the end of March, however, power outages had become so frequent, unpredictable and prolonged that, despite the presence of an Uninterrupted Power Supply system (UPS), little in the way of table production was achieved.

267. To prevent slippage in the completion of the project, several tables for output and for the analysis and evaluation of data were produced at CELADE headquarters. The REDATAM software, a recent CELADE development, was utilised extensively in these activities. GUYREDEM data - already captured using the micro-computer - facilitated testing of the applicability of REDATAM to survey data. Though REDATAM had been conceived as a project for users of census data, its utility for users of survey data is apparent through the creation of a survey data base in REDATAM form. This data base (called GUYREDATAM) permits users of GUYREDEM data to quickly prepare and retrieve their own tabulations.

XV. DATA ANALYSIS AND REPORTS

268. This administrative report is the first of a number of documents envisaged as outputs in connection with GUYREDEM. A companion report presenting some salient features of the data collected has already been prepared. Technical reports on the Sample Design and Selection Process and Mortality Estimates have likewise been completed. Work on analysis of fertility and migration is on-going, with a number of technical reports and discussion papers anticipated as the probable outcome of these activities. Future collaboration of CELADE with the Statistical Bureau and analysts in Guyana towards full analysis of the information collected in GUYREDEM is foreseen.

XVI. PUBLICITY, PUBLIC RECEPTIVITY AND PUBLIC SUPPORT DURING GUYREDEM

269. Publicity for the survey took two forms - print coverage and radio coverage. Three articles providing public information on GUYREDEM were published in the Guyana Chronicle. The first

appeared during the conceptualisation stage, when the modus operandi was beginning to crystallise. The second was published on the second day of the pilot project and served the purpose of confirming to householders, the bona fide and official nature of the survey. The intention was to have this article appear on the first day of the pilot, but for administrative reasons, this was not possible. The third news item appeared just prior to commencement of fieldwork for the full national survey, thanked householders of the pilot project for their co-operation and support during that exercise, and prepared householders nationwide for the visits of GUYREDEM enumerators. Many enumerators kept these clippings as part of their enumeration kits to use them, if necessary, as instruments for motivating respondents to co-operate on GUYREDEM.

270. Items pertaining to GUYREDEM were also carried by the Guyana Broadcasting Corporation during its morning, noon-hour and nightly newscasts. These news-spots provided information to the public immediately before and during the pilot project, as well as at various times during fieldwork for the full national survey.

271. The GUYREDEM field staff received tremendous support and encouragement in the discharge of their duties in all regions of the country. The fact that in the initial stages, enumerators were based in their home regions played a significant role in this. Their training and the news coverage of GUYREDEM, however, were also contributory factors, as was the naturally hospitable nature of the Guyanese population. The low household non-interview rate (7.8%) is testimony to the positive interaction and communication between enumerators and respondents and reflects both the receptivity of the public and the abilities of the enumerators to perform their tasks adequately.

272. Public officials, as well as private agencies and citizens were very supportive and provided invaluable assistance in the proper execution of GUYREDEM. The public officials included Regional Chairmen, District Executive Officers and other administrative personnel in the regions, touchaus, members of the uniformed services, school teachers, officials of the Ministry of Health - in fact all public servants who were contacted for assistance in facilitating the conduct of GUYREDEM fieldwork. The private individuals were mainly contacts of the 'old-boy network' type, or friends of friends of members of the field team. This support was a tremendous morale booster and was critical to the success of data collection. In numerous cases, it resulted in a significant reduction of projected field costs.

273. All field staff on GUYREDEM, as well as GUYREDEM administration personnel, were issued with identification cards bearing their photographs and confirming their authority to collect the relevant information. They were all required to have their I.D. cards visible at all times during enumeration. Not only was this viewed to be good for public relations and wider information about the survey, but it is known to be a strategy which reduces non-sampling errors by cutting down on refusals. use of I.D. cards in GUYREDEM, particularly in interior areas, reinforced the validity of this point.

**Appendix A1. Schedule of Activities for Conducting GUYREDEM:
July 1985**

ACTIVITIES	1985						1986											
	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
<u>Pre-project</u>																		
<u>Preparatory Phase</u>																		
Survey Design																		
Questionnaire Design and Printing																		
Preparation of manuals																		
Sampling																		
Cartography																		
Personnel Recruitment																		
Training																		
Pilot test																		
Evaluation of pilot project																		
Household listing exercise																		
Questionnaire modification and printing																		
Training enumerators/coders supervisors																		
<u>Execution of Survey</u>																		
Field work																		
Training coders																		
Coding, manual editing and preliminary evaluation																		
<u>Data Processing</u>																		
Develop/modify computer programs																		
Training of key-punching personnel																		
Computer related activities (key-punching, editing, cleaning data etc.)																		
Preparation of tables and other output																		
<u>Analysis/Seminars</u>																		
<u>Workshops/Final reports etc.</u>																		

**Appendix A2. Revised Schedule of Activities for Conducting
GUYREDEM: August 1985**

ACTIVITIES	1985			1986												1987		
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
<u>Pre-project</u>																		
<u>Preparatory Phase</u>																		
Survey Design																		
Questionnaire Design and Printing																		
Preparation of Manuals																		
Sampling Cartography																		
Personnel Recruitment																		
Training																		
Pre-test																		
Evaluation of pilot project																		
Household listing exercise																		
Questionnaire codification and printing																		
Training enumerators/coders supervisors																		
<u>Execution of Survey</u>																		
Field work																		
Training coders																		
Coding, manual editing and preliminary evaluation																		
<u>Data Processing</u>																		
Develop/modify computer programs																		
Training of key-punching personnel																		
Computer related activities (key-punching, editing, cleaning data etc.)																		
Preparation of tables and other output																		
<u>Analysis/Seminars</u>																		
<u>Workshops/Final reports etc.</u>																		

Appendix B1. CELADE Budgetted Expenditures for GUYREDEM

<u>Expenditures from Santiago and Port-of-Spain</u>	<u>\$US</u>
Computer Equipment.....	12 250
Supplies	885
Travel	17 050
Questionnaires	3 065
Administration and Services	2 055
Miscellaneous	385
 Sub-total	 35 690
<hr/>	
<u>UNDP (Guyana) Disbursements for GUYREDEM*</u>	28 215
 TOTAL (funding agency expenditure)	 63 905

* These disbursements were made on behalf of ECLAC/CELADE

Appendix B2. GUYREDEM Project Expenditures in Guyana

	\$ GY	
Salaries (field staff)	58 818	
Training Allowances (field staff)	6 104	
Travelling Allowances (field staff)	28 918	
Travelling Allowances (Bureau Staff)	10 050	
Out of town per diems (Bureau staff)	6 590	
Transportation	12 035	
Stationery and Supplies	1 500	
Miscellaneous	2 780	
Sub-total (expenditures in Guyana)		126 795

Guyana-Government Contributed Funds

Benefits and Allowances	8 857	
National Insurance Contributions	3 391	
Transportation, Travel and Administration ...	12 147	
Sub-Total		24 395
TOTAL: EXPENDITURES IN GUYANA		151 190

Appendix C. Advertisement for Recruitment of GUYREDEM Field Personnel

VACANCIES

Applications are invited from suitably qualified persons countrywide to fill a number of positions as field personnel

(ENUMERATORS, SUPERVISORS AND FIELD CO-ORDINATORS)

on a socio-demographic survey, to be conducted by the Statistical Bureau.

Applicants for positions of Enumerator or Supervisor should be over 18 years of age and satisfy the following requirements:—

- (i) Have a sound education, preferably with G.C.E. 'O' Levels, C.X.C. or equivalent qualifications.
- (ii) Be prepared to work for long hours in the field.

Applicants for the position of Field Co-ordinator, must have a post-secondary education with some experience in the conduct of censuses or social surveys.

Successful candidates, with the exception of the Field Co-ordinator, will work mainly in their Region of residence but must be prepared to travel outside their Region occasionally.

Applications in candidates own handwriting should reach the Chief Statistician, Statistical Bureau, Homestretch Avenue, not later than March 15, 1986.

B.O. Bowman
Chief Statistician

86-02-11

Appendix D. Project Staff on GUYREDEM

ECLAC/CELADE DEMOGRAPHY UNIT

STATISTICAL BUREAU OF GUYANA

Project Co-ordinator

Wally Boxhill

Survey National Director

Jotis Singh

CELADE

Field Area Co-ordinators

Technical Assistance Experts

Branston Burrowes
David Seelochan

Dirk Jaspers Faijer
Lawrence Finnegan
J. Heward Gough
Ari N. Silva

Fieldstaff*

Stephen Francois+
Eric Moore+
Patricia Caesar
Stephanie Carrington
Deborah Clement
Jennifer Fraser
Bridnath Gossai
Steve Houston
Wendy Sandiford
Patricia Sangster
Linda Yarde

STATE PLANNING COMMISSION

National Technical Adviser

Compta Luckiram

Data Processing Manager

Marilyn Duncan-Sharples

Data Entry Staff

Daune Sandiford
Bridget Callender
Sandra Nandalall
Nadia Rupa
Heather Whyte

Office Coding and Operations

Guyadat Persaud
Yonette McLean

* Fieldstaff at mid-point of GUYREDEM fieldwork

+ Supervisors of Enumeration Teams

Appendix D. (cont'd)

Cartography

Branston Burrowes
Walter Rutherford

Document Preparation

Neil Bollers

Accounts

Winston Wray
Bibi Ahamad

Typists and Office Support

Deborah Fraser
Gangadai Issardai
Pamela Singh

Appendix E. Census and GUYREDEM Topics and Approaches to Collection of Information

1980 CENSUS	GUYREDEM
Identification Country Major Area Minor Area Town/Special Area ED Number Household Number	Identification Region Major Area ED Number Rural/Urban Household Number Interview Date Number of Usual Residents Mort(ality) Migr(ation)
FOR ALL PERSONS	FOR ALL PERSONS
T.3 Household Number T.4 Individual Number Within Household (1) T.5 Relationship to Head of Households (Q.2) T.6 Sex T.7 Age (in completed years)	Q.2 Relationship to Head of Household (T.5) Q.3 Date of Birth (T.7) Q.4 Sex (T.6) Q.5 Race (T.5) Q.6 Survival of Mother Q.7 Place of Birth (T.10) - Year of Immigration (T.16)
PERSONS 14 YEARS AND OVER	FOR PERSONS 5 YEARS AND OVER
T.8 Marital Status (Q.11)	Q.8 Place of Residence 5 Years Ago Q.9 Highest Level of Schooling (T.19) - Number of Years Completed (T.19)
ALL PERSONS	FOR PERSONS 14 YEARS AND OVER
T.9 Usual Residence T.10 Birthplace (Q.7) T.11 Race (Q.5) T.12 Religion	Q.10 Widowhood Q.11 Marital or Union Status (T.8) Q.12 Economic Activity (T.28) Q.13 Occupation (T.26)
ALL PERSONS LOCALLY BORN	FOR FEMALES 14 YEARS AND OVER
T.13 Number of Years Lived In Major Area T.14 Major Area Last Lived In T.15 Number of Major Areas Ever Lived In	Q.14 Children Ever Born (T.30) Q.15 Last Live Birth Q.16 Child Survival Q.17 Children Abroad
FOREIGN BORN ONLY	HEAD OF HOUSEHOLD ONLY
T.16 Year of Immigration (Q.7)	Module IV - Mortality Affecting Household Module V - Migration (international) Affecting Household
ALL AGES	
T.17 Type of School or University Now Being Attended T.18 Attendance at School or University: status (part-time, full-time etc.) T.19 Highest Level of Education Attainment (Q.9) - Type of School/University (Q.9) - Years of Schooling - Exam Passed	

Appendix E (cont'd)

ALL PERSONS 15 YEARS AND OVER	
T.20 Occupation for which trained or being trained	
T.21 Method by which Vocational training acquired	
T.22 Period of Training	
T.23 Main Activity (During Past 12 months)	
T.24 Worker or Occupational Status (during past year)	
T.25 Months Worked During Pst 12 months	
T.26 Main Job or Occupation (during past 12 months)(Q.13)	
T.27 Industry or Type of Business during past 12 months	
T.28 Economic Situation during past week (Q.12)	
T.29 Total Number of Hours Worked	
FEMALES 14 YEARS AND OVER NOT ATTENDING SCHOOL FULL-TIME	
T.30 Number of Liveborn Children Ever Had (Q.14)	
T.31 Age of Mother at First Liveborn Child	
T.32 Age of Mother at Last Liveborn Child	
T.33 Number of Livebirths/still births during past 12 months	
T.34 Union Status at Present or at age 45 (Q.11)	
T.35 Duration of Union (completed years)	
HEAD OF HOUSEHOLD ONLY	
T.36 Type of Dwelling	
T.37 Type of Tenure	
T.38 Water Supply	
T.39 Toilet Facilities	
T.40 Year When Built	
T.41 Material of Outer Wall	
T.42 Number of Rooms	
T.43 Type of Lighting/Fuel Used for Cooking	
ALL PERSONS	
T.44 Where did Individual spend census night?	
T.45 Total Income	
- Pay Period	
- Amount	

The first topic in both the Census and GUYREDEM related to the names of individuals comprising the households. However, this has not been included in the chart since information on name of respondent was not data-captured in either undertaking.

* In GUYREDEM the individual number within the household was not recorded as a separate topic but is determined from the questionnaire design (individual columns denoted for second person, third person etc.) and order of listing household members.

*United
Development*



*Nations
Programme*

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*With the Compliments
of the
Resident Representative*

Seminar/Workshop on the Guyana Retrospective
Demographic Survey (GUYREDEM)

7, July 1987, Georgetown,

G U Y A N A

Honourable Deputy Prime Minister, Chief Statistician, Distinguished
Guest, Ladies and Gentlemen.

It gives me great pleasure to be here this morning to participate in the
opening of this very important seminar/workshop on the Guyana Retrospective
Demographic Survey, which has been code-named GUYREDEM.

My presence here will primarily serve to represent the interest of certain
organizations of the United Nations system in the population programmes of
developing countries and at this particular time, that of Guyana. This survey
was carried out with the assistance of the United Nations Latin American
Demographic Centre and its parent body the Economic Commission for Latin
America and the Caribbean (ECLAC) as well as UNFPA as part of their help and
action in understanding the country's demographic situation which will allow
improvement of the population projections so that better socio-economic
development plans can be made.

This workshop has been arranged principally for the presentation and
discussion of results of the first completed phase of GUYREDEM, which are
being released to the public today. It will also serve to inform and
sensitise the potential users of the data.

Mr. Chairman, it is some significance that this seminar/workshop is
being held at this time. I do not know if the timing was deliberate or
accidental, but this month countries world wide are being asked to focus on
population issues and problems. During this month it is predicted that the
world population will have reached 5 billion and while we cannot pinpoint
the day and time with any accuracy or assurance the 11 July was selected by
UNFPA to be celebrated as the day when the world population should have

Today it is estimated that the world population is now growing by some 80 million people a year. Rates of population growth of course vary widely in different parts of the world. Between 1950 and 1985, the population of the developed world increased from 800 million to 1.2 billion, while that of developing countries grew from 1.7 billion to 3.7 billion.

What does this mean? It means that attempts to meet the greater food and energy demand caused by the growing population, place heavy pressure on the natural environment which might affect adversely the minimum standards of health, nutrition and human dignity for some, if not most, people in the developing countries. Unequal access to resources, uneven distribution and low levels of technology in most developing countries when combined with rapid population growth, exacerbate the disparities between developed and developing countries even further. These issues are what the United Nations developmental organization are primarily concerned about.

With this background in mind, the United Nations is placing great emphasis on the general issue of the environment and its effects on population and human settlements and also the effect of population on the environment. In 1976 projects specifically oriented towards environmental issues were valued at \$42.5 million and accounted for 10.7 percent of the total UNDP programme of \$398 million. In 1986, environment oriented projects costing \$123.3 million represented 19.9 percent of our field programme of nearly \$620 million. These figures signify UNDP's commitment to resolving and improving environmental issues and problems including that of population.

Of course these issues will present themselves differently and in varying degrees country by country. And indeed it could be said that Guyana's situation is at that end of the spectrum where development is likely to be constrained by

its relatively small population and human resource base. Despite this the structure and the qualitative aspects of the population, if not its size, will be of concern to planners and development agents.

The Retrospective Demographic Survey of Guyana (GUYREDEM) is a national survey which was carried out during 1986. The Statistical Bureau of Guyana and the Latin American Demographic Centre agreed to work together in order to increase the capabilities of the Statistical Bureau to provide population information required for the development of Guyana. The Retrospective Demographic Survey conducted in Guyana utilised techniques which were developed by CELADE, tested in certain countries in Latin America, and being utilised for the first time in the English-speaking Caribbean. Unlike the full blown population census, indirect estimation techniques such as those used in GUYREDEM resulted in a direct saving in cost, in human resource inputs and time, and provided results which proved to be as reliable as those derived from the traditional population census approach. GUYREDEM also permitted the collection of information at the regional level to facilitate developmental planning and administration on a regional basis. GUYREDEM therefore utilised techniques developed within the framework of the ECLAC and its demographic institution CELADE, but its application to Guyana and other countries in the Caribbean and Latin America was made possible through the generous participation of the Government of Canada which contributed some 5 million Canadian Dollars to CELADE under the CELADE/CANADA interchange and co-operation agreement. Under the terms of this agreement for strengthening demographic capabilities in the region, the Canadian grant provided equipment, which in the case of Guyana was 2 micro computers and funds for other support services, including both local and external costs, training of local national staff as well as the assignment of technical personnel to provide inputs into certain aspects of the survey. Among the technical personnel who contributed to GUYREDEM, I wish to mention first, Mr. Wally Boxhill who happily combines his

Guyanese background with Canadian training and experience, thus combining donor know-how with national sensitivities. We also have to pay tribute to Mr. Larry Finnegan, Chief of the Data Processing Section of CELADE, Santiago, who was responsible for training in Data Processing aspects of GUYREDEM. We imposed on his good nature to train not only the Statistical Bureau Staff but also staff of the UNDP office and other agencies in Guyana. Mr. Ari Silva, who was responsible for the application of REDATAM software to the GUYREDEM Data Base thus facilitating its use by persons who were not familiar with micro computer technology. Two other persons who are also part of this gathering are Mr. Hew Gough, Statistician, who designed a sample selection for GUYREDEM, and Dirk Jaspers who has worked intensively on indirect estimation methods in Honduras and has brought his experience to bear on all aspects of GUYREDEM. They are both here with us today and will be involved in a number of sessions at this seminar over the next few days. Joining us for the first time from CELADE's Regional Office in San Jose, Costa Rica is Karol Krotki, who like Mr. Boxhill and Mr. Gough is on assignment from Statistics Canada, and brings to us experience in the application of indirect methods to the estimation of fertility.

Mr. Chairman, my office has received a number of letters from ECLAC Santiago, Port-of-Spain, and wherever, effusively thanking us for the outstanding contribution we have made to the success of GUYREDEM. While I am happy to receive bouquets, especially very large ones on behalf of my office and my staff, I am very hard put to understand the lavishness of these comments believing that what we have done, and what we have contributed, is the least any UNDP office would have done for any sister organization of the system. I would say however that outside what we have considered to be a normal service, we were very happy to have had a room vacant in my office at the time when the computers desperately needed air conditioned, dust-free accommodation. It was

the time when developmental work was being undertaken and to avoid any slippage in the project schedule, UNDP was pleased to provide the necessary office space. I like to think that we not only successfully annexed an important Government department but also became what we always aim to be, which is an essential agent of the planning and developmental process of the countries we serve.

In conclusion Mr. Chairman, I should like to say again on behalf of ECLA and its demographic centre, CELADE and UNFPA how happy we have been to collaborate with the Statistical Bureau, State Planning and other agencies of the Government of Guyana in this demographic survey and analysis exercise. Our appreciation also to the Government of Canada, CIDA and Statistics Canada for its financial support and the loan of its technical personnel. We trust that through our intervention we will have contributed to the development of skills and the enhancement of capabilities for continuing work in the area of demographic analysis and through this improve the data base for economic and social development planning. We therefore hope that this seminar/workshop which will analyse and disseminate the results of the work of GUYREDEM over the past few months will be a success and fully achieve its objectives.

Cecile I.G. Davis
Resident Representative
United Nations Development Programme
GUYANA

UNITED NATIONS
INTEROFFICE MEMORANDUM



NATIONS UNIES
MEMORANDUM INTERIEUR

TO: Mr C. Applewhite, Director, ECLAC, Port of Spain DATE: July 4th, 198
A:

REFERENCE: ECO626/7

THROUGH:
S/C DE:

FROM: W. O. Boxhill
DE:

SUBJECT:
OBJET: GUYREDEM Seminar/Workshop

Attached please find a copy of each of the two reports which will provide the focus of discussion at the GUYREDEM seminar/workshop to be held on Tuesday 7 and Wednesday 8 July in Guyana.

Both documents were prepared here and sufficient copies made available for the seminar/workshop, thanks to the sincere and dedicated efforts of Mrs De Gannes and Mr Goodridge. A number of other staff members also made invaluable contributions to having these reports ready- Ms Nelson, Mr Alexander, Mr Dookie and Ms David. On Friday last, Mrs Afoon was "co-opted" to increase the resources available for the final phases of preparation. I am extremely grateful for all their contributions.

As indicated in previous memoranda on the subject of this seminar/workshop, joining me in the programme for presentation and discussion of these reports will be Messrs Gough and Jaspers of CELADE Santiago and Mr Krotki of CELADE San Jose.

The following is the programme of activities prepared in conjunction with the Statistical Bureau of Guyana.

TUESDAY, 7th JULY 1987

1. INTRODUCTORY REMARKS

Mr B. Bowman, Chief Statistician of Guyana
Ms. Cecile Davis, Resident representative UNDP, Guyana

FEATURE ADDRESS

Mr W. Haslyn Parris, Deputy Prime Minister (Planning
and Development), Guyana

- 2. SESSION 2: Background and Organisational Aspects of GUYREDEM
- 3. SESSION 3: Sampling Design and Selection Methodology
- 4. SESSION 4: Questionnaire Design, Development and Use

LUNCH

- 5. SESSION 5: Pilot Project and GUYREDEM Fieldwork
- 6. SESSION 6: Data Processing Aspects of GUYREDEM
- 7. SESSION 7: GUYREDATAM: The Development of REDATAM and its
Application to GUYREDEM

WEDNESDAY, 8th JULY 1987

- 1. SESSION 1: Data Quality Aspects of GUYREDEM
- 2. SESSION 2: General Findings of GUYREDEM
- 3. SESSION 3: Fertility
Mortality
Migration

LUNCH

- 4. SESSION 4: GUYREDEM in Relation to the Needs of Planners in
Guyana

5. SESSION 5: Future Research Directions and Undertaking of
Demographic Work

6. SESSION 6: Other

Closing Remarks

RECEPTION

Information:

Mr. J. Brice, Programme Officer, ECLAC, Port-of-Spain

Mr. R. St Hill, Admin. Officer, ECLAC, Port-of-Spain

Appendix F.

**QUESTIONNAIRES USED IN THE GUYREDEM PILOT PROJECT AND THE FULL
NATIONAL SURVEY**

RESTROSPECTIVE DEMOGRAPHIC SURVEY (GUYREDEM)

1986

CO-OPERATIVE REPUBLIC OF GUYANA

(All information collected is strictly confidential)

I. (a) IDENTIFICATION

Region		M.A.		E.D.		Rural/ Urban	House- hold		No. of usual residents	

(b) FULL POSTAL ADDRESS OR EXACT LOCATION OF HOUSEHOLD

II. OBSERVATIONS

Name of Enumerator _____ Date of Interview

				86
D		M		

Name of Supervisor: _____ Date of Review

				86
D		M		

FOR OFFICE USE ONLY

Date of Editing/Coding _____ Date of Data Entry _____

III. Ques. No.	CHARACTERISTICS FOR ALL PERSONS	HEAD OF HOUSEHOLD
1.	NAME: What is the name and surname of each individual who normally lives in this household?	<div style="display: flex; justify-content: space-around;"> <input type="checkbox"/> 1 Respondent him/herself <input type="checkbox"/> 2 Other person </div>
2.	HOUSEHOLD RELATIONSHIP: What is your relationship to the head of this household?	<input type="checkbox"/> Head
3.	DATE OF BIRTH: What is your date of birth?	<div style="display: flex; justify-content: space-around;"> <div><input type="text"/> <input type="text"/> Day</div> <div><input type="text"/> <input type="text"/> Month</div> <div><input type="text"/> <input type="text"/> Year</div> </div>
4.	SEX:	<input type="checkbox"/> Male <input type="checkbox"/> Female
5.	RACE: What is your race?	<div style="display: flex; justify-content: space-around;"> <div><input type="checkbox"/> 1 East Indian</div> <div><input type="checkbox"/> 2 Negro/Black</div> <div><input type="checkbox"/> 3 Mixed</div> <div><input type="checkbox"/> 4 Amer-Indian</div> <div><input type="checkbox"/> 5 Others</div> <div><input type="checkbox"/> 9 N.S.</div> </div>
6.	MATERNAL ORPHANHOOD: (a) Is your mother alive? (b) Where is she living? (c) In which year did she die?	<div style="display: flex; justify-content: space-around;"> <div><input type="checkbox"/> 1 Alive</div> <div><input type="checkbox"/> 2 Dead</div> <div><input type="checkbox"/> 3 Don't know</div> </div> <div style="display: flex; justify-content: space-around;"> <div><input type="checkbox"/> (b) Guyana</div> <div><input type="checkbox"/> Abroad</div> <div><input type="checkbox"/> Don't know</div> </div> <div style="display: flex; justify-content: space-around;"> <div><input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/></div> <div>Year of death</div> </div>
7.	PLACE OF BIRTH: (a) In which region of Guyana or country other than Guyana were you born? (b) When did you arrive in Guyana? (only for those born abroad)	<div style="display: flex; justify-content: space-around;"> <div><input type="text"/> <input type="text"/> Region in Guyana</div> <div><input type="text"/> <input type="text"/> Country other than Guyana</div> </div> <div style="display: flex; justify-content: space-around;"> <div><input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/></div> <div>Year of arrival</div> </div>
8.	FOR PERSONS 5 YEARS AND OVER PLACE OF RESIDENCE IN 1981: In which region of Guyana or country other than Guyana were you living in 1981?	<div style="display: flex; justify-content: space-around;"> <div><input type="text"/> <input type="text"/> Region in Guyana</div> <div><input type="text"/> <input type="text"/> Country other than Guyana</div> </div>
9.	EDUCATION: (a) What is your highest level of schooling? (b) How many years did you have this schooling?	<div style="display: flex; justify-content: space-around;"> <div><input type="checkbox"/> 1 None</div> <div><input type="checkbox"/> 2 Primary</div> <div><input type="checkbox"/> 3 Secondary</div> <div><input type="checkbox"/> 4 College</div> <div><input type="checkbox"/> 5 University</div> <div><input type="checkbox"/> 6 Other</div> <div><input type="checkbox"/> 9 N.S.</div> </div> <div style="display: flex; justify-content: space-around;"> <div><input type="text"/> <input type="text"/></div> <div>Year of schooling</div> </div>
10.	FOR ALL PERSONS 14 YEARS AND OVER WIDOWHOOD: Is your first spouse or first partner alive?	<div style="display: flex; justify-content: space-around;"> <div><input type="checkbox"/> 1 Never married</div> <div><input type="checkbox"/> 2 Alive</div> <div><input type="checkbox"/> 3 Dead</div> <div><input type="checkbox"/> 9 D.K./N.S.</div> </div>
11.	MARITAL OR UNION STATUS: Are you currently married, common-law, in a visiting union, widowed, divorced or single?	<div style="display: flex; justify-content: space-around;"> <div><input type="checkbox"/> 1 Married</div> <div><input type="checkbox"/> 2 Common-law</div> <div><input type="checkbox"/> 3 Visiting</div> <div><input type="checkbox"/> 4 Widowed</div> <div><input type="checkbox"/> 5 Divorced</div> <div><input type="checkbox"/> 6 Separate</div> <div><input type="checkbox"/> 7 Single</div> <div><input type="checkbox"/> 9 N.S.</div> </div>
12.	OCCUPATION: What was your occupation during last week?	<input type="text"/>
13.	ECONOMIC ACTIVITY: What did you do last week?	<div style="display: flex; justify-content: space-around;"> <div><input type="checkbox"/> 1 Worked</div> <div><input type="checkbox"/> 2 Had job/didn't work</div> <div><input type="checkbox"/> 3 Looked for work</div> <div><input type="checkbox"/> 4 Wanted and available</div> <div><input type="checkbox"/> 5 Student</div> <div><input type="checkbox"/> 6 Retired</div> <div><input type="checkbox"/> 7 Disabled</div> <div><input type="checkbox"/> 8 Home duties</div> <div><input type="checkbox"/> 9 Others/N.S.</div> </div>
14.	FOR FEMALES 14 YEARS AND OVER CHILDREN EVER BORN: How many live-births did you have?	<div style="display: flex; justify-content: space-around;"> <div><input type="checkbox"/> 1 None (Go to page 4)</div> <div><input type="text"/> <input type="text"/> Live-birth</div> </div>
15.	DATE OF LAST LIVE BIRTH: (a) What is the date of your last live-birth? (b) Is the child still alive?	<div style="display: flex; justify-content: space-around;"> <div><input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> Day Month Year</div> </div> <div style="display: flex; justify-content: space-around;"> <div><input type="checkbox"/> 1 Alive</div> <div><input type="checkbox"/> 2 Dead</div> <div><input type="checkbox"/> 9 D.K./N.S.</div> </div>
16.	CHILD SURVIVAL: (a) How many of your children are dead? (b) How many of your children are still alive?	<div style="display: flex; justify-content: space-around;"> <div><input type="text"/> 1 None</div> <div><input type="text"/> <input type="text"/> Number dead</div> <div><input type="text"/> 9 D.K./N.S.</div> </div> <div style="display: flex; justify-content: space-around;"> <div><input type="text"/> 1 None</div> <div><input type="text"/> <input type="text"/> Number alive</div> <div><input type="text"/> 9 D.K./N.S.</div> </div>
17.	INTERNATIONAL MIGRATION: How many of your children are living abroad by sex?	<div style="display: flex; justify-content: space-around;"> <div><input type="checkbox"/> 1 None</div> <div><input type="text"/> <input type="text"/> Total</div> <div><input type="text"/> <input type="text"/> Male</div> <div><input type="text"/> <input type="text"/> Female</div> </div>

SECOND PERSON

☐ 1 Respondent him/herself ☐ 2 Other person

☐ 2 Spouse or common-law ☐ 3 Child of head or spouse ☐ 4 Parents or in-laws of head or spouse ☐ 5 Grand-children of head or spouse ☐ 6 Other relative of head or spouse ☐ 7 Employee ☐ 8 Other non-relatives

Day Month Year

☐ Male ☐ Female

☐ 1 East Indian ☐ 2 Negro/Black ☐ 3 Mixed ☐ 4 Amer-Indian ☐ 5 Others ☐ 9 N.S.

(a) ☐ 1 Alive ☐ 2 Dead ☐ 3 Don't know
(b) ☐ 1 Guyana ☐ 2 Abroad ☐ 3 Don't know
(c) Year of death

(a) Region in Guyana Country other than Guyana
(b) Year of arrival

Region in Guyana Country other than Guyana

(a) ☐ 1 None ☐ 2 Primary ☐ 3 Secondary ☐ 4 College ☐ 5 University ☐ 6 Other ☐ 9 N.S.
(b) Year of schooling

☐ 1 Never married ☐ 2 Alive ☐ 3 Dead ☐ 9 D.K./N.S.

☐ 1 Married ☐ 2 Common-law ☐ 3 Visiting ☐ 4 Widowed ☐ 5 Divorced ☐ 6 Separate ☐ 7 Single ☐ 9 N.S.

☐

☐ 1 Worked ☐ 2 Had job/didn't work ☐ 3 Looked for work ☐ 4 Wanted and available ☐ 5 Student ☐ 6 Retired ☐ 7 Disabled ☐ 8 Home duties ☐ 9 Others/N.S.

☐ 1 None Live-birth

(a) Day Month Year
(b) ☐ 1 Alive ☐ 2 Dead ☐ 9 D.K./N.S.

☐ 1 None Number dead ☐ 9 D.K./N.S.
☐ 1 None Number alive ☐ 9 D.K./N.S.

☐ 1 None Total Male Female

TENTH PERSON

☐ 1 Respondent him/herself ☐ 2 Other person

☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8
 Spouse or common-law Child of head or spouse Parents or in-laws of head or spouse Grand-children of head or spouse Other relative of head or spouse Employee Other non-relatives

Day Month Year

☐ Male ☐ Female

☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 9
 East Indian Negro/Black Mixed Amer-Indian Others N.S.

(a) ☐ 1 ☐ 2 ☐ 3
 Alive Dead Don't know
 (b) ☐ 1 ☐ 2 ☐ 3
 Guyana Abroad Don't know
 (c) Year of death

(a) Region in Guyana Country other than Guyana
 (b) Year of arrival

Region in Guyana Country other than Guyana

☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 9
 (a) None Primary Secondary College University Other N.S.
 (b) Year of schooling

☐ 1 ☐ 2 ☐ 3 ☐ 9
 Never married Alive Dead D.K./N.S.

☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 9
 Married Common-law Visiting Widowed Divorced Separate Single N.S.

☐

☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9
 Worked Had job/didn't work Looked for work Wanted and available Student Retired Disabled Home duties Others/N.S.

☐ 1 None Live-birth

(a) Day Month Year
 (b) ☐ 1 ☐ 2 ☐ 9
 Alive Dead D.K./N.S.

☐ 1 None Number dead ☐ 9 D.K./N.S.
☐ 1 None Number alive ☐ 9 D.K./N.S.

☐ 1 None Total Male Female

ELEVENTH PERSON

☐ 1 Respondent him/herself ☐ 2 Other person

☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8
 Spouse or common-law Child of head or spouse Parents or in-laws of head or spouse Grand-children of head or spouse Other relative of head or spouse Employee Other non-relatives

Day Month Year

☐ Male ☐ Female

☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 9
 East Indian Negro/Black Mixed Amer-Indian Others N.S.

(a) ☐ 1 ☐ 2 ☐ 3
 Alive Dead Don't know
 (b) ☐ 1 ☐ 2 ☐ 3
 Guyana Abroad Don't know
 (c) Year of death

(a) Region in Guyana Country other than Guyana
 (b) Year of arrival

Region in Guyana Country other than Guyana

☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 9
 (a) None Primary Secondary College University Other N.S.
 (b) Year of schooling

☐ 1 ☐ 2 ☐ 3 ☐ 9
 Never married Alive Dead D.K./N.S.

☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 9
 Married Common-law Visiting Widowed Divorced Separate Single N.S.

☐

☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9
 Worked Had job/didn't work Looked for work Wanted and available Student Retired Disabled Home duties Others/N.S.

☐ 1 None Live-birth

(a) Day Month Year
 (b) ☐ 1 ☐ 2 ☐ 9
 Alive Dead D.K./N.S.

☐ 1 None Number dead ☐ 9 D.K./N.S.
☐ 1 None Number alive ☐ 9 D.K./N.S.

☐ 1 None Total Male Female

IV. MORTALITY (to be completed by Head or Qualified Respondent):

Has any person in this household died between 1983 and today?

☐ Yes ☐ No ☐ D.K./N.S.

Go to Section V

How many

For each death in the household during the reference period, obtain and record the following information.

No.	Full name of deceased	Sex Males = 1 Females = 2	Date of death			Age at death		
						1 year or more (years)	Under 1 year months	Under 1 month (days)
1.		<input type="checkbox"/>	<input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/>	
2.		<input type="checkbox"/>	<input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/>	
3.		<input type="checkbox"/>	<input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/>	
4.		<input type="checkbox"/>	<input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/>	
5.		<input type="checkbox"/>	<input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/>	
6.		<input type="checkbox"/>	<input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/>	
7.		<input type="checkbox"/>	<input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/>	
8.		<input type="checkbox"/>	<input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/>	
9.		<input type="checkbox"/>	<input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/>	
10.		<input type="checkbox"/>	<input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/>	

V.

INTERNATIONAL MIGRATION (to be completed by Head or Qualified Respondent):

Has any member of this household left to live abroad during the last five (5) years i.e. since 1981?

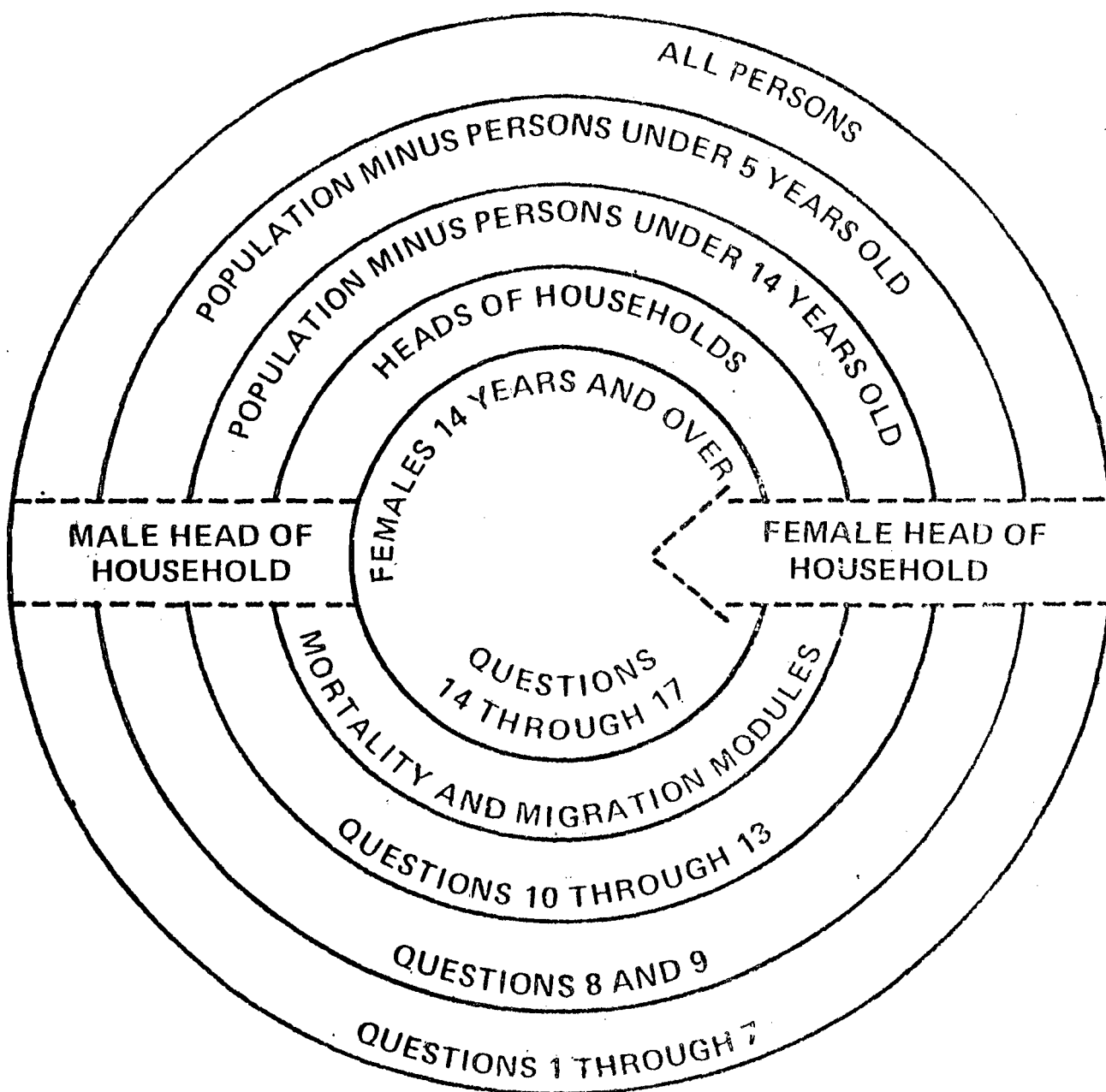
☐ Yes ☐ No ☐ D.K./N.S.

How many? End interview

For each departure, beginning with the most recent, obtain and record the following information.

No.	Year of departure	Sex M=1 F=2	Age at time of departure	Country of residence	Education (highest level attained prior to departure)				Occupation at time or prior to departure
1.	<input type="text"/> <input type="text"/>	<input type="checkbox"/>	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/>	<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input type="checkbox"/> University	<input type="checkbox"/> Other	<input type="text"/> <input type="text"/>
2.	<input type="text"/> <input type="text"/>	<input type="checkbox"/>	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/>	<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input type="checkbox"/> University	<input type="checkbox"/> Other	<input type="text"/> <input type="text"/>
3.	<input type="text"/> <input type="text"/>	<input type="checkbox"/>	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/>	<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input type="checkbox"/> University	<input type="checkbox"/> Other	<input type="text"/> <input type="text"/>
4.	<input type="text"/> <input type="text"/>	<input type="checkbox"/>	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/>	<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input type="checkbox"/> University	<input type="checkbox"/> Other	<input type="text"/> <input type="text"/>
5.	<input type="text"/> <input type="text"/>	<input type="checkbox"/>	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/>	<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input type="checkbox"/> University	<input type="checkbox"/> Other	<input type="text"/> <input type="text"/>
6.	<input type="text"/> <input type="text"/>	<input type="checkbox"/>	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/>	<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input type="checkbox"/> University	<input type="checkbox"/> Other	<input type="text"/> <input type="text"/>
7.	<input type="text"/> <input type="text"/>	<input type="checkbox"/>	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/>	<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input type="checkbox"/> University	<input type="checkbox"/> Other	<input type="text"/> <input type="text"/>
8.	<input type="text"/> <input type="text"/>	<input type="checkbox"/>	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/>	<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input type="checkbox"/> University	<input type="checkbox"/> Other	<input type="text"/> <input type="text"/>
9.	<input type="text"/> <input type="text"/>	<input type="checkbox"/>	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/>	<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input type="checkbox"/> University	<input type="checkbox"/> Other	<input type="text"/> <input type="text"/>
10.	<input type="text"/> <input type="text"/>	<input type="checkbox"/>	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/>	<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input type="checkbox"/> University	<input type="checkbox"/> Other	<input type="text"/> <input type="text"/>

Appendix G. Target Respondents for the Various Topics Covered by GUYREDEM



**Appendix H: Occupation Coding Scheme
Used in GUYREDEM**

Professional Occupations (with degree or equivalent)

Architects/Engineers	01
Surveyors	02
Physical Scientists	03
Agricultural and related	04
Physicians, Surgeons and related	05
Teachers	06
Minister of Religion	07
Solicitors, Barristers and related	08
Other Professions	09

Non-Professional Workers with Specialised Training

Technicians (medical workers, Pharmacists, Dispensers, sick-nurse, nurse (trained and trainee, midwife or other medical workers)	11
Draughtsmen	12
Chemical Process Workers (lab technicians and chemical process workers).....	13
Other Non-Professional Workers	19

Administrative, Executive and Supervisory Occupations

Administrative and Executive (Government).....	21
Administrative and Executive (Non-Government)	22
Traders	23
Business Proprietors (excluding farmers employing paid help)	24
Farmers (employing paid help)	25
Supervisors of Craftsmen	26
Supervisors of Technical Workers and Related Workers ..	27
Supervisors of Agricultural Workers and Related Field Workers	28
Supervisors of Clerical and Sales Workers	29

Clerical and Sales Workers

Book-keeping Cashiers, Accounts Clerks, etc.	31
Stenographers, Typists, etc.	32
Other Control Clerks	33
Punch Card/Office Machine Operator	34
General Office Clerk	35
Saleman, Commercial Traveller, Commission Agent	36
Sales Workers	37

Other Sales Workers, Vendors	38
Other Clerical Workers	39

Craftsmen and Technical Workers

Marine Transport Workers	41
Heavy Equipment and other transport workers	42
Telephone, Telegraph and Radio-Communication Operators	43
Textile, Garment, hat, shoe and other leather workers .	44
Blacksmiths, Welders and related workers	45
Goldsmiths, Jewellers and related workers	46
Fitters, Turners, tool setters and related machine operators	47
Mechanics, Repairmen and related service workers	48
Spray Painters	51
Plumbers and Pipe Fitters	52
Jack Hammer Operators, Gold and Diamond workers and skilled workers in Bauxite, Alumina or Manganese .	53
Well Driller	54
Electrician, Linesman, Communications equipment installers and repairmen	55
Carpenters, Furniture Makers, Boat Builders, Logger and Squarer and skilled operators of wood working and sawmilling machines	56
Painter, Mason and related and other skilled construction workers	57
Printing machine operator, book binder and related, Photographer and related and other skilled workers in Printing	58
Sugar Production Process Workers	59
Baker, Pastry, confectionery and other skilled food production process workers	61
Operator of grain milling machines	62
Other Boiler men and firemen	63
Tobacco and related process workers	64
Paper production craftsmen	65
Operators of stationary engines	66
Other craftsmen and machine operators	69

Service Workers

Firemen, Policemen and Prison Officers (below the rank of Inspector), members of Defence Force, Other members of the Uniformed Services	71
---	----

Domestic Servants, waiters and related, Office Cleaners and related, hairdressers, beauticians and related, nurse (untrained), laundry workers (except machine operators) and other Personal Service workers not elsewhere classified	72
Conductor	73
Postman, Postal Agents and Messengers	74
Artists, musicians, writers (including Journalists) and related creative artistes	75
Librarian, Archivist (without degree)	76
Teacher and Social Worker (without degrees), Athletes, Sportsmen and related recreation workers not elsewhere classified	77
Religious Workers	78
Other Service Workers	79

Manual Workers

Livestock cultivators, Cultivators (without paid help), Sugar Factory Labourers, sugar and other farm labourers	81
Gardener, Handyman	82
Fisherman, Hunter	83
Forestry workers (labourers) and Sawmill workers	84
Labourers in mining and quarrying activities	85
Boats, Truck, Van, Cart and Dray Workers	86
Porter, Stevedore, Wharf and related, packers, wrappers and labellers and other factory workers not elsewhere classified	87
Garage Hand	88
Labourers not elsewhere classified	89
Student (only for migrants 14 years and above)	90
Occupation not adequately defined	91
Housewife	92
Not Stated	99

APPENDIX I.

ADMINISTRATIVE AND DOCUMENT CONTROL FORMS USED IN GUYREDEM

A P P O I N T M E N T C A R D

RETROSPECTIVE DEMOGRAPHIC SURVEY OF GUYANA (GUYREDEM 1986)

Dear Householder,

Your household has been included, in a national sample of about 9,000 households, for the collection of data on the population of Guyana. This survey (GUYREDEM 1986), is being conducted by the Statistical Bureau.

My name is and I will be visiting you again on at to carry out the survey interviews. This process will be very simple and very brief, taking up only about 5 to 10 minutes of your time. During the visit, I will be wearing my GUYREDEM 1986 identification card.

Your co-operation and that of other adult members of your household would be greatly appreciated. If the date or time is inconvenient, please be kind enough to suggest (in the space below) a time more suitable to you and leave this sheet where I can collect it on my return on

On behalf of the Statistical Bureau, please accept my sincerest thanks in advance for your kind co-operation.

.....
Enumerator
(Statistical Bureau of Guyana)

Dear Enumerator,

The suggested date/time are inconvenient to us. We would prefer you to visit us instead on at

.....
Head of Household

CORRECTION/CLARIFICATION

REGION

[illegible]

STEPS TO FOLLOW WHEN CODING/EDITING GUYREDEM QUESTIONNAIRES

1. Check to ensure that the Region, Major Area and ED Number of the Questionnaire are the same as detailed on the listing sheet and are the same for all Questionnaires in the ED.
2. For each completed Questionnaire in the ED, check to ensure that it is the same as was selected, i.e., ensure that Household Number, Name of Head and/or Address are as stated in the relevant listing sheet.
3. For each Questionnaire compare the figure entered for Number of usual residents with number of persons entered as being enumerated in that Household.
4. Ensure that the numbers entered for MORT and MIGR in part (b) of the identification box are the same as entered in Section IV and V respectively, on the back page of the Questionnaire.
5. For the rest of the editing rules, refer to pages 63-65 in the Enumerators Manual.
6. Code Occupation (Question 13) if stated, according to the list of Occupational Codes.
7. Code Occupation if stated for any migrant in Section V, according to the list of Occupational Codes.
8. Enter date of Editing/Coding on front page of the Questionnaire.
9. Arrange all Questionnaires in the ED in ascending order according to Household Number, i.e., from 01 upwards.
10. Place documents you have reviewed into labelled envelopes and complete the relevant section of the labels.

If you detect any problem or have any queries regarding any questionnaire, notify the Survey National Director or other GUYREDEM manager.

GUYREDEM ENUMERATION RECORD

REGION: _____

[illegible]

GUYREDEM SUPPLIES RECORD

REGION:-

[illegible]

RETROSPECTIVE DEMOGRAPHIC SURVEY OF GUYANA, GUYREDEM 1986

Week ending Supervisor's Listing Record (to be completed every week)
Supervisor's Name

LINE NO.	NAME OF ENUMERATOR	M. AREA	E.D. NO.	NAME OF AREA	DATE		DATES YOU VISITED ENUMERATOR	COMMENTS
					Begun	Finished		

Total: E.D.'s

Households

Persons

Refusals

Absent households

GUYREDEM APPOINTMENT CONTROL SHEET

This sheet should be reviewed daily to ensure that interviews are conducted on the day and time arranged. Remember to keep all appointments or notify your supervisor if you cannot conduct an interview at the date and time set.

January										February										March									
S		M		T		W		F		S		M		T		W		F		S		M		T		W		F	
5	8	9	10	11	12	13	14	15	16	2	3	4	5	6	7	8	9	10	11	1	2	3	4	5	6	7	8	9	10
12	13	14	15	16	17	18	19	20	21	8	9	10	11	12	13	14	15	16	17	8	9	10	11	12	13	14	15	16	17
19	20	21	22	23	24	25	26	27	28	15	16	17	18	19	20	21	22	23	24	15	16	17	18	19	20	21	22	23	24
26	27	28	29	30	31					22	23	24	25	26	27	28	29	30	31	22	23	24	25	26	27	28	29	30	31
April										May										June									
S		M		T		W		F		S		M		T		W		F		S		M		T		W		F	
4	5	6	7	8	9	10	11	12	13	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20	8	9	10	11	12	13	14	15	16	17	8	9	10	11	12	13	14	15	16	17
18	19	20	21	22	23	24	25	26	27	15	16	17	18	19	20	21	22	23	24	15	16	17	18	19	20	21	22	23	24
25	26	27	28	29	30	31				22	23	24	25	26	27	28	29	30	31	22	23	24	25	26	27	28	29	30	31
September										October										November									
S		M		T		W		F		S		M		T		W		F		S		M		T		W		F	
1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	10
8	9	10	11	12	13	14	15	16	17	8	9	10	11	12	13	14	15	16	17	8	9	10	11	12	13	14	15	16	17
15	16	17	18	19	20	21	22	23	24	15	16	17	18	19	20	21	22	23	24	15	16	17	18	19	20	21	22	23	24
22	23	24	25	26	27	28	29	30	31	22	23	24	25	26	27	28	29	30	31	22	23	24	25	26	27	28	29	30	31

[illegible]

RETROSPECTIVE DEMOGRAPHIC SURVEY OF GUYANA (GUYREDEM 1986)

NAME OF ENUMERATOR

[illegible]

RETROSPECTIVE DEMOGRAPHIC SURVEY OF GUYANA (GUYREDEM 1986)

Name of Enumerator Enumerator's Weekly Listing Record (to be submitted to supervisor every week)

LINE No.	M. AREA	E.D. No.	NAME OF AREA	DATE OF LISTING		NUMBER OF HOUSEHOLDS	VISITED BY/DATE	REFUSALS	ABSENT HOUSEHOLDS	COMMENTS
				Start	Finish					

Additional Comments: _____

GUYREDEM: Routing Labels for Envelopes Containing Completed Questionnaires

REGION	M A	E D	NO. OF HHLS.	ENUMERATOR'S NAME	DATA PROCESSING DATE/INITIALS			
					Key Entered	Verified	Structural Edit	Internal Consist. Check

**Appendix J: Enumeration Districts Covered in the
GUYREDEM Pilot Project**

<u>Major Area</u>	<u>ED No.*</u>	<u>Place Name</u>
01	008	Kingston
01	029	Cummingsburg
01	064	Bourda
01	128	Wortmanville
01	146	Charlestown
01	168	Albouystown
02	060	West Ruimveldt
02	113	South Ruimveldt
02	164	Lodge Village
02	189	Newtown
02	215	Kitty Village
02	238	Kitty Village
02	270	Campbellville
02	286	Prashad Nagar
04	006	Bagotstown
04	026	Herstelling
04	037	Mocha
04	054	Golden Grove
04	067	Good Success
05	002	Industry
05	039	Vryheid's Lust
05	085	Two Friends
05	091	Lusignan
05	106	Buxton
05	116	Friendship

* All EDs were in Region 4.

APPENDIX K.

**ARRANGEMENTS FOR PROVISION OF MICRO-COMPUTER EQUIPMENT TO THE
STATISTICAL BUREAU OF GUYANA UNDER THE GUYREDEM PROJECT**

AGREEMENT BETWEEN THE STATISTICAL BUREAU
OF GUYANA AND THE LATIN AMERICAN DEMOGRAPHIC
CENTRE (CELADE) FOR USE OF TWO(2) IBM PC-XT MICROCOMPUTERS
IN CONNECTION WITH THE RETROSPECTIVE DEMOGRAPHIC
SURVEY OF GUYANA (GUYREDEM 1986)

The Statistical Bureau of Guyana and the Latin American Demographic Centre (hereinafter referred to as "CELADE") agree to work together on the terms presented below in order to increase the capabilities of the Statistical Bureau to provide population information required for the development of Guyana.

BACKGROUND

1. Since 1980 when the last population census was taken, the population of Guyana has experienced several changes - in its size, in its composition, and in its distribution. Persons have left for or arrived from abroad; others have moved from one region to another; babies have been born; other persons have died. In short, the population is not what it used to be as recently as six years ago.
2. The Retrospective Demographic Survey of Guyana (GUYREDEM) is a national survey which will be carried out during 1986. The objective is to provide information on various aspects of the population of the country, especially estimates of its size, distribution and the components of change therein. The data collected will help in understanding the country's demographic situation and in planning for the provision of services at the national, regional and local levels.

OBJECTIVES

As an addendum to the general agreement between the Statistical Bureau of Guyana and the United Nations Economic Commission for Latin America and the Caribbean (ECLAC) and the Latin American Demographic Centre (CELADE) covering collaboration on GUYREDEM 1986, the objectives of this agreement are to:

1. Provide the Statistical Bureau of Guyana with the micro-computer equipment for processing and analysing data from GUYREDEM 1986;
2. Ensure that data collected in GUYREDEM 1986 are entered on micro-computer diskettes and available for analysis by users in Guyana, ECLAC and CELADE.

TERMS OF THE AGREEMENT

A. It is agreed that CELADE shall:

1. Provide two (2) micro-computers for GUYREDEM 1986 with components as identified in Appendix I of this agreement and have this equipment installed within three (3) weeks of its arrival in Guyana, ensuring that it is in good working order at the time of installation;
2. Provide software and ancillary supplies - diskettes, ribbons and computer paper for operating this equipment for GUYREDEM 1986;
3. Ensure the maintenance of the two micro-computers in working order, covering all costs of maintenance related to defects which may develop during the period defined below. For each micro-computer system, the period of maintenance referred to herein, shall begin on the date when the system has been installed as a fully operational one and shall end one month after the date on which all data from all regions of Guyana covered in GUYREDEM 1986 have been entered into the computer system, or January, 31, 1987, whichever is earlier.

4. Provide adequate documentation including owner and user manuals, written in English, as well as registration and warranty forms pertaining to the specifications, recommended maintenance practices and user instructions and guides for the hardware and software provided as components of the micro-computer systems;
5. In co-operation with ECLAC, provide if necessary, the assistance to create a GUYREDEM 1986 data base on the micro-computer systems, ensuring that it is adequate for use by analysts including those of the Statistical Bureau of Guyana, ECLAC and CELADE;
6. Train the Statistical Bureau staff in the use of the IBM micro-computers for the entry of data and retrieval of GUYREDEM 1986 tabulations.

B. It is agreed that the Statistical Bureau of Guyana shall:

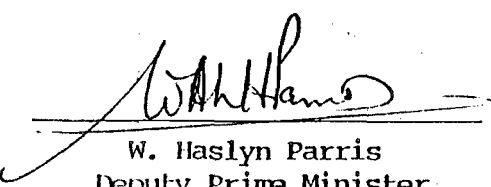
1. Create, with ECLAC/CELADE assistance if required, a data base containing all the data collected in GUYREDEM 1986. This shall be compiled from questionnaires used in the fieldwork for GUYREDEM 1986;
2. Provide two(2) data entry operators and a supervisor for work with the micro-computer equipment during GUYREDEM 1986;
3. Provide adequate facilities and premises for the operation and safe-keeping of the micro-computer system and ancillary equipment;
4. Ensure the maintenance in good working order of the micro-computer systems after the expiry of the period described in Section A, Item 3;
5. Establish such mechanisms including insurance charges as necessary, to cover the loss or damage of the micro-computer equipment or any part thereof;
6. Notify CELADE, ECLAC or UNDP, Georgetown of any problem in the operation or maintenance of the micro-computer equipment or loss or damage to the components.

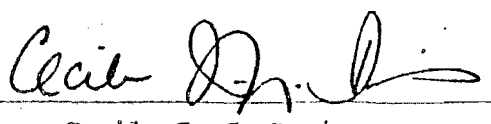
This agreement, carried out as part of the GUYREDEM 1986 project described above, does not involve any transfer of funds in either direction; between the Statistical Bureau of Guyana and the United Nations System (ECLAC, CELADE or UNDP).

Any changes to this agreement will be made by mutual agreement between the parties involved.

On behalf of the
Government of Guyana
Statistical Bureau

On behalf of the
United Nations/ECLAC/CELADE


W. Haslyn Parris
Deputy Prime Minister
(Planning and Development)


Cecile I. G. Davis
Resident Representative
United Nations Development Programme

24 / 10 / 86
Date

24 October 1986
Date

APPENDIX 1

Configuration of IBM P.C. equipment provided by CELADE to Statistical Bureau of Guyana for use on GUYREDEM '86.

- 2 IBM PC with 640KB memory
- 2 360KB disk drives
- 1 1.2MB disk drive
- 2 20MB Hard Disk drives
- 2 PGS Monochrome Monitor (Amber)
- 2 STB II Graphics Monitor Interface, with 1 parallel port
- 2 AST Memory Expansion Board with 384KB memory (included in total system memory noted above), with 1 serial and 1 parallel port, and battery backup clock)
- 1 transformer
- 1 UPS system
- 2 Surge Protectors
- 2 Epson FX185 Printers

Software

- Symphony (integrated Spreadsheet, word processing and graphics system)
- Computer Keyes Data Entry System
- IBM DOS 3.10 (Disk Operating System)
- DBASE III (Data base management system)
- SIDEKICK (Memory resident text editor)
- CELADE Developed CHEKEDIT (Data editing system) and CONTROL (Survey primary control system) systems
- SPSS for micros

Supplies

- 10 boxes 10 each DSDD (369KB) floppy disks
- 10 boxes 10 each HD (1.2 MB) floppy disks
- 10 boxes continuous forms paper

a
24/4

L2 H.F.
24/5/86

