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SRI LANKA NUTRITIONAL AND HEALTH SURVEILLANCE FEASIBILITY STUDY

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Nutrition and Janasaviya Division
of the
Ministry of Policy Planning and Implementation
by
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ACRONYMS

ADB	- Asian Development Bank
ANR	- Agriculture and Natural Resources
CB	- Census Block
CDC	- Center for Disease Control
DCS	- Department of Census and Statistics
FAO	- Food and Agricultural Organization
GSL	- Government of Sri Lanka
MPPI	- Ministry of Policy Planning and Implementation
NCHS	- National Center for Health Statistics
N&JD	- Nutrition and Janasaviya Division
PD&S	- Program Development and Support (USAID)
PPS	- Probability Proportional to Size
PSU	- Primary Sampling Unit
SU	- Sampling Unit
UNICEF	- United Nations Children's Fund
UNDP	- United Nations Development Program
USAID	- United States Agency for International Development
WFP	- World Food Program
WHO	- World Health Organization

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EXECUTIVE SUMMARY

The USAID Mission has been providing PL 480 food assistance since the 1950s and emerged over time as the principal donor of food aid to Sri Lanka. One of the effects of recent legislative changes in the United States has been the substitution of a PL 480 Title III program for the older PL 480 Title I program. Considerable emphasis is now being placed on the management of PL 480 activities and operations, and on monitoring its impact on food security at the local community or family level. It is not possible to isolate the impact of food aid (primarily wheat, in this case) on food security because it is not distributed through separate market channels within Sri Lanka. However, through an appropriate monitoring system the Government of Sri Lanka (GSL), USAID and other donor agencies could monitor the impact of development programs on nutritional well-being. The results will therefore show indirectly what impact these programs (and policy measures recommended by donor agencies) are having on food security at the individual or household level.

It is not clear whether nutritional standards in Sri Lanka have been improving or declining over time, not because there are no cross-sectional data, but because of difficulties with comparing the data obtained from different surveys. Although the GSL has conducted three national nutritional status surveys since 1975, methods and survey forms have not been standardized to provide maximum comparability of data among surveys. Moreover, because these "benchmark" surveys are very large, the results are not published in a timely manner, and therefore do not contribute as much to policy formulation and decision-making as they should. A further problem is that no cross-sectional data are collected on child health and nutrition between the "benchmark" surveys, which are conducted once in 5-6 years. Hence there are no time-series

data on child health and nutrition, nor is there a survey system to provide such data.

The purpose of this study is to design such a system for the GSL, which will be implemented by the Nutrition & Janasaviya Division of the Ministry of Policy Planning and Implementation (N&JD/MPPI). In this study we have outlined the components of a survey system for monitoring nutritional and health status in Sri Lanka, for detecting changes in the population over time, and for relating those changes to socio-economic, demographic, agroecological and other factors. The survey design is practical, statistically sound and simple to implement, and it will yield data that will both enlighten and contribute to planning, policy analysis, and decision-making. We suggest this survey be implemented biannually to capture the influence of seasonal factors (such as rainfall, prices, food supply and certain infections) on nutritional status. (The only donor agency participating significantly in nutritional surveillance work in Sri Lanka is UNICEF. This agency is currently designing a survey system for monitoring the nutritional impact of the GSL's poverty alleviation program. This activity will focus primarily on poor families in a few selected areas; hence it is both target-oriented and area-specific, and not designed to collect data from a nationally representative sample, i.e., it will not yield unbiased national estimates of the prevalence of protein energy undernutrition.)

The specific sampling design and methodology recommended by this study will enable the survey results to be published quickly and to be compared with those of the larger "benchmark" surveys. We have, in other words, ensured that consistency will be maintained between the smaller surveys (which will be conducted twice a year) and the larger surveys (which are normally conducted once in 5-6 years) by adopting a sampling plan and frame similar to that used for the larger surveys. Because this survey system is practical, easy to manage, and cost-effective, we expect that results will be produced

in a timely manner and be available to planners and policy analysts in a published form. Through detailed discussions with the Director of the N&JD/MPPI, we were able to determine that this unit has the capacity for implementing this system. The last nutritional status survey (1988/89) was in fact implemented by this agency. It makes eminent sense for the N&JD to undertake this activity because it has overall responsibility for monitoring poverty alleviation and nutrition intervention programs in all parts of the country.

The proposed survey design and methodology have been discussed in detail in our report. It essentially entails carrying out a survey of 2,000 randomly selected households (in those provinces not affected by civil strife) twice a year. The estimated local cost of implementing this survey system is around Rs 3,000,000 (US$ 68,000) per annum. The system is designed to yield national and provincial-level data. Provided the GSL accepts our recommendations, we suggest that this activity be funded out of local currencies generated by the PL 480 Title III program, which is aimed at improving food security in Sri Lanka. Given the close relationship between food security and nutritional status (the latter serves more or less as a proxy for the former), funds allocated for nutritional surveillance will be well spent. However, we understand that the multiyear PL 480 Title III program is not likely to continue indefinitely. Hence the GSL will have to identify an alternative source of funds for sustaining this activity after the Title III program has ended.

I. INTRODUCTION

A. Background of Study

USAID has been providing food grain assistance to Sri Lanka since the 1950s (under the PL 480 Title I and II programs). The Title I program is no longer in operation as it was replaced by the Title III program in Fiscal Year 1992. (The Title II program was phased out a few years earlier.) A major goal of the new Title III program (which is now the principal mechanism for delivering PL 480 food assistance to Sri Lanka) is increased food security, and accordingly, USAID would like to ensure that information on food availability among the most vulnerable portions of the population (or on appropriate proxy indicators, such as individual nutritional status) could be collected through existing or new surveillance mechanisms.

This study was commissioned to determine how USAID could track the impact of the PL 480 Title III program on food security in Sri Lanka. We have ascertained that no mechanism currently exists for doing so and accordingly, designed a new system for the collection of time-series data that would enable both USAID and the Government of Sri Lanka (GSL) to monitor the impact of food aid and other development programs on human welfare. The agency in charge of collecting these data will be the Nutrition and Janasaviya Division of the Ministry of Policy Planning and Implementation (N&JD/MPPI). The chief instrument of data collection is a scientifically designed nutrition and health survey, which should ideally be conducted twice a year to capture seasonal variations in nutritional status. (There is a distinct bimodal pattern of crop production in Sri Lanka.)

It is not possible to directly assess the impact of food aid on food security because the former is not distributed through separate market channels, either at the wholesale or retail level. (All the wheat grain entering the country is converted into flour at a central milling complex located in Trincomalee before it is distributed island-wide.) Thus it is not possible to determine whether the wheat flour (or wheat flour products) purchased by a household is PL 480 Title III wheat or commercially imported wheat. (In most cases, it will be a mixture of both.) In any event, the collection of household food consumption data on a routine basis is an expensive and time-consuming activity. The degree of non-sampling error also tends to be high because these data are not accurately recorded by enumerators. (In Sri Lanka, sample surveys generally use the recall technique for collecting food consumption data.)

We therefore submit that it is difficult to assess the impact of food aid on food security directly, and that it is more practical and convenient to do so indirectly using proxy indicators, such as height-for-age and weight-for-height, which are reasonably accurate measures of individual nutritional status. It is with this objective in mind that we have designed the above survey system, which will yield reliable proxy indicators of food security on a reliable and timely basis. But before we go into details, it is important to discuss what data are currently available on nutritional status, how they are collected, and why this system is inadequate for monitoring nutritional and health status in Sri Lanka.

B. Background of Nutritional Surveys in Sri Lanka

There is considerable confusion about the nutritional well-being of the population of Sri Lanka. Some experts say it has improved while others say it has worsened as a result of the economic liberalization, which they believe has led to an increase in the incidence of poverty and malnutrition among the lower income

classes. It is important, however, to distinguish between notions (or opinions) based on conjecture and informed judgements based on sound statistical data.

In Sri Lanka, individual nutritional status is assessed on the basis of anthropometric measurements collected from infants and pre-school children using scientific sampling techniques. Anthropometric measurements are universally accepted as the most reliable and accurate indicators of nutritional status at the individual level. Indicators, such as height-for-age and weight-for-height, are calibrated (separately for males and females) and compared with corresponding values of the NCHS/WHO reference population to identify the incidence of protein-energy undernutrition among infants and pre-school children. The sample means are standardized to zero one variables (commonly called z-scores) and tested for significance at the 95% confidence level. There is a continuing debate on the issue of comparing anthropometric data of Sri Lankan children with western standards. We are not going to examine the pros and cons of this debate because it is beyond the purview of our study to do so.

The most recent island-wide survey of infants and pre-schoolers was conducted in 1988/89. The preliminary report, published in March 1992, provided national estimates for stunting and wasting and compared them with corresponding estimates from the preceding (1980/82) survey. The estimates for stunting were 36.4% and 36.6%, respectively, while those for wasting were 18.4% and 12.3%, respectively. These findings suggest that between 1980/82 and 1988/89 the incidence of chronic hunger remained more or less the same, while that of acute hunger increased by around six percentage points. Thus we may conclude that during that six year interval, Sri Lankan children (under five years) on the whole got thinner but did not register any appreciable change in terms of linear growth. However, we should be cautious about interpreting the above results in this manner because we do not know to what extent they have been

influenced by sampling and non-sampling errors. A detailed analysis would be required to assess the extent of these errors, which is beyond the scope of this study.

1. Historic Nutritional Status Surveys

Nutritional indicators are used, inter alia, in Sri Lanka for assessing the impact of development programs on human well being (Sri Lanka Nutritional Status Survey 1988/89). Anthropometry is generally accepted as a "proxy" for nutritional status of children by organizations world wide. In Sri Lanka, various organizations, ministries and individuals have carried out anthropometric surveys using different sampling frames and methodologies (R.M.K. Ratnayake, 1989; D. Sahn, 1981; D. Sahn, 1984; S. Weerasinghe, 1986; Food and Nutrition Policy Planning Division (FNPPD), undated papers; Ministry of Health publications, 1976; Publications 1 & 2, FNPPD (undated).

In 1975/76 the first national-level anthropometric survey was carried out with support from the Center for Disease Control (CDC) and USAID. In 1980/82 the second national survey was carried out by the Food and Nutrition Policy Planning Division (FNPPD) of the Ministry of Plan Implementation. The second survey used a more comprehensive questionnaire that included socio-economic data. The third national survey was carried out in 1988/89 by the Nutrition and Janasaviya Division of the Ministry of Policy Planning and Implementation (N&JD/MPPI). Data were collected from October 1988 to February 1989 in all provinces except those affected by civil strife (i.e., the North and East). Results of that survey (as discussed above) were published in 1992.

2. Present Nutritional Information

Nation-wide nutritional surveys are conducted in Sri Lanka once in every 5-6 years, with 1975/76 as the starting point. During the intervening years, no smaller surveys are conducted to bridge the gaps between the larger surveys. In other words, there are no

time-series data on child nutrition in Sri Lanka, nor does a mechanism exist for the collection of such data. As we saw, the last national nutrition survey was conducted in 1988/89, and the survey report was published in 1992. Although the quality of that survey is not in question, the data it provided are less useful because they are about three years out of date. According to Dr. R.M.K. Ratnayake (Director of the N&JD/MPPI), "The larger the survey, the more time it takes it to analyze the data and publish the results. For a large national survey (of say, eight to ten thousand households), it takes a minimum of two to three years to produce the final survey report. There is a need to develop and institutionalize a smaller survey system for providing data in a more timely manner. The surveys should be conducted on a routine basis, perhaps as often as twice a year to capture seasonality effects on nutrition, health and other indicators of human well being. The serial monitoring of nutritional and health status is particularly important from the point of view of assessing the social and economic impact of structural adjustment packages (i.e., macroeconomic policy reforms) on the population of Sri Lanka."

It needs to be emphasized that there are no current (official) estimates for the prevalence of stunting and wasting in Sri Lanka because no national surveys have been conducted since 1988/89. In other words, due to a lack of information, we are unable to say whether nutritional standards have improved, declined or remained the same during the past three years. Yet on September 20, 1992, the Sunday Times of Sri Lanka reported (in a headline article), "Today, the greatest need for Sri Lanka's children is to obtain better nutrition, for 60 percent of Sri Lankan children under five are severely undernourished." The article does not indicate whether it is referring to chronic or acute undernutrition, nor does it say when the data were collected, how they were collected (i.e., the sampling design), and by whom they were collected. It will probably have conveyed to readers (both at home and overseas) the idea that the economic situation in Sri Lanka is terrible and

that the majority of children are suffering from starvation, which is regrettable because there is no evidence to support such a view.

The fact is that objective, timely, credible data that allow comparisons over years are lacking (Review of Nutrition and Socioeconomic Surveys in Sri Lanka, Report to USAID, Norman Beller Oct. 1989). "Therefore policy programs related to nutrition of children are carried out and monitored in a vacuum of quantitative information." (Dr. R.M.K. Ratnayake.) As we saw, the first nation-wide nutritional status survey was conducted in 1975/6, the second in 1980/82, and the third, in 1988/89. (The National Demographic and Health Survey of 1987 collected anthropometric data for the rural sector only.) Although on the average, national nutritional data are collected by the Government of Sri Lanka (GSL) once in every 5-6 years, methods and survey forms have not been standardized to provide maximum comparability of data among surveys.

We have, accordingly, designed a nutritional and health surveillance system for the GSL based on a statistically sound, robust, and consistent sampling frame and design. The questionnaire is simple and easy to administer, but it has also been designed in such a manner as to yield information that will both enlighten and contribute to nutritional and health policy analysis and formulation. The success of this study will be judged in terms of these factors, i.e., whether the system it is recommending for the serial monitoring of nutritional and health status will be accepted and implemented by the GSL (even with modifications) and ultimately "institutionalized", thereby enabling it to contribute to policy planning and analysis on a routine basis.

II. METHODOLOGY

A. Survey Methodology

The approach we are recommending for monitoring nutritional and health status is very similar to that explained in the report, "SRI LANKA NUTRITIONAL STATUS SURVEY 1988/89", published by the N&JD/MPPI. The results of the survey are discussed in detail in that report. On the other hand, it explains only briefly the sampling methodology used for the 1988/89 survey, which was developed with the assistance of the Department of Census and Statistics (DCS), the principal source of sampling expertise in the country. The sampling plan is a critical factor in the development of a survey system. If it is weak, it will yield highly biased and unreliable data. If, on the other hand, it is sound, it will yield data that could be used with confidence by researchers, policy analysts, and decision-makers.

Our task is to assist the N&JD/MPPI in developing a practical, cost-effective and statistically sound survey system for monitoring changes in the nutritional and health status of infants and pre-school children in Sri Lanka, based on the sampling frame developed by the DCS for the collection of socio-economic, demographic and labor force data. We have reviewed in detail the methods used in the 1988/89 Sri Lanka Nutritional Status Survey. As we saw, these large surveys (covering eight to ten thousand households) are conducted once in every 5-6 years. We have developed a much smaller (but nationally representative) survey system for bridging the gaps between the larger surveys, which will enable the GSL to establish a time-series data base for child health and nutrition.

A crucial consideration is that the survey system should be practical and cost-effective and at the same time yield statistically sound data in a timely fashion. The larger the number of households interviewed, the smaller the sampling error, and vice versa. In other words, a satisfactory trade-off has to be found between these two inversely related phenomena. Since we are concerned with developing a low-cost survey system specifically for the purpose of bridging the 5-6 year intervals between the larger national-level surveys, we have to settle for a smaller number of households than would normally be sampled in the once-in-five-year "benchmark" surveys, and conversely, for a higher degree of sampling error. The standard errors of the estimates in these "benchmark" surveys (such as the 1988/89 Nutritional Status Survey) are minute, and even if they were to double, the results would still be valid, i.e., reasonably reliable. These are precisely what the smaller "in-between" surveys seek to provide -- "reasonably reliable" (national) estimates for stunting, wasting, etc., rather than "precise" estimates. As such, an increase in the sampling error (which will be modest) is not considered a serious drawback with the recommendations made in this study. In fact, the small increase in sampling errors will be offset by a large decrease in non-sampling errors if the data collection and entry are managed well.

We recommend that the number of sample households be reduced substantially to enable the GSL to complete the survey within 2-3 months, and that the survey form be simplified to reduce field operations, data entry and summary. However, the basic procedures and methods we recommend are very similar to those of the once-in-five-year "benchmark" surveys to allow comparisons of data and to detect changes from the "benchmark" surveys. Thus when differences are observed, the differences must be attributed to changes in the population and not to changes in the survey methodology or questionnaire design. In other words, we want to ensure that consistency will be maintained between the sampling design and

methodology proposed by us and that used by the N&JD for the collection of nutritional and health data.

The reduced number of questionnaires will allow improved quality control of field and data summary operations (i.e., it will reduce non-sampling errors substantially). It will also enable the GSL to carry out the survey twice a year to obtain seasonal differences. **The survey strategy is to monitor change from the "benchmark" surveys, and the purpose of the sampling design is to provide survey estimates similar to those of the "benchmark" surveys rather than to estimate true target values in the population, which is the purpose of the "benchmark" surveys.**

The smaller sample size will permit statistically valid estimates to be made at the national and provincial levels, but not at the district levels and certainly not at the sector levels within districts. On the other hand, if the sub-sample is selected in such a way as to allow the smaller sample results to be regressed against the larger sample (i.e., "benchmark") results, then statistically valid estimates can be made by updating the "benchmark" surveys every time the small sample is run. The key point is to ensure that the small sample and large sample results are as highly correlated as possible. Thus a sampling plan based on the principle of selecting a sub-sample of individual households from the larger "benchmark" sample will provide the highest possible level of correlation and comprise the best possible monitoring system.

B. Sample Design

Our recommendation is to follow the sample design of the Quarterly Labor Force Survey (developed by the DCS), since it is the best design available in the country and is perfectly suited for the collection of nutritional and health data. For that survey, a sample of 2500 census blocks (which is approximately 1 percent of the census blocks) was selected (covering all 25 districts in the

country). DCS personnel visited these sample census blocks and listed all the households in each of these blocks. A sample of ten households was selected from each block for enumeration. The North and East Province was not covered because of civil strife, consequently out of the 2500 sample blocks, only 1950 were surveyed.

The sample design we recommend is the same, though the sample size will be smaller, i.e., we suggest that the GSL sub-sample one fourth of the 1950 CBs sampled by the Quarterly Labor Force Survey for the purpose of routinely collecting data on child health and nutrition. The Quarterly Labor Force Survey selected the 2500 CBs using the principle of replicated systematic sample selection, where each CB is selected from a list of all CBs in a District (in either the urban or the rural sector). The CBs have approximate numbers of households. These households are used in the sample selection procedure using probabilities proportional to size (PPS). Once a CB is selected, DCS personnel visit the block and list every household within that block (including the number of persons living in each household).

Thus we recommend sub-sampling about 500 of the 1950 CBs selected and listed by the DCS, and that the existing lists of households be used for selecting and screening households eligible for the nutritional and health survey (i.e., an eligible household must have at least one child between the ages of 6 and 59 months.) The target (national) sample is around 2,000 households, thus the number of eligible households selected will be around four per block. We are recommending that systematic sampling be used at the second stage of sampling also (for selecting and screening eligible households).

This sampling design is approximately a self-weighting sample which means that all households in one sector and district have the same chance of selection. We say "approximately" because of two

complicating factors. First, the CB is selected using PPS methods where size is the number of households. Then all households are listed in the CB and 10 are selected from the total number of households. In most cases, there are differences between the number of households used in the original selection and those listed. When these are the same, the selection process is self-weighting; when these are different, there are small differences in the probabilities of selection. Second, we require households with children of a certain age. We recommend that 10 households be selected and that these be screened in a certain order. In some CBs, one may identify infants or pre-schoolers (i.e., children between 6 and 59 months of age) in the first four households screened. In other cases, one may screen ten or more households before identifying four eligible ones. This may cause probabilities to differ.

Nevertheless, the sample design we recommend is appropriate and it is based on the best household lists available in Sri Lanka. If the N&JD personnel use these pre-listed CBS, they will not have to spend time listing households. If, on the other hand, CBs are selected that have not been pre-listed, all the households in these CBs will have to be listed afresh. We estimate, after talking to DCS staff, that it takes about two days to list properly all households in a CB. This amount of listing time will therefore be saved (per CB) by the N&JD sub-sampling the existing sampling frame used by the DCS for its Quarterly Labor Force Survey. This a practical, cost-effective and statistically sound approach, and it will save the N&JD a great deal of funds as well as listing time.

Since the sample of 2500 CBs (of which 1950 are in the seven provinces to be surveyed) were selected using replicated sampling, we need to explain this concept in detail. The total sample of 1950 CBs was selected using twelve systematic random selections where each random selection represented the entire country. Each month a new random start was selected and the interval was used to

obtain approximately two hundred CBs. These two hundred were so selected that in every district, the urban and rural sector were sampled according to a proportional allocation. The DCS has advised that the last 1950 CBs selected are the most recent and that they are the best available in the country. There will be no bias if the N&JD sub-samples the same CBs. We believe that the nutrition survey design will be greatly simplified if the N&JD adopts this approach. (The sampling frame used for the 1988/89 Nutrition Status Survey is out of date, nor is it available.) Moreover, it could without fear challenge any expert to provide a better frame than the one we have identified. We have therefore ensured that the N&JD will not be vulnerable to possible criticisms regarding the sampling frame.

We recommend that three replications be used for the sub-sample. If three replications provide too many CBs, then CBs in one replication can be deleted in certain districts and in certain sectors. Sampling errors will be computed from households as if they were selected at random, or between replications (there will be two or three replications in each district and sector). From each of the CBs selected (a total of 500), ten households will be selected. Within each block, the interviewer will visit the pre-selected households serially with a view to identifying the first four having at least one infant or pre-school child each. When such a household has been identified, the interviewer will complete the survey form. If (s)he finds a household without an infant or pre-school child, a screening questionnaire will be completed showing the residents and their ages. In short, the interviewer will visit each of the ten pre-selected households serially and fill out the survey form only for those households with at least one infant or pre-school child.

We believe that a target sample size of 2000 households with children between the ages of 6 and 59 months is sufficient if the survey is carried out and managed well in the field. It is assumed

that 40 percent of the pre-selected households (10 per block) will have at least one infant or pre-school child. The CB households are arranged in order of family size, i.e., households with one family member are listed first and those with the maximum number are listed last. We suggest that this arrayed list not be used because it may introduce a bias into the sampling design.

The following approach would be more appropriate: use the natural order and calculate an interval that is one tenth of the number of households in the CB; select a random start between one and the interval; and then select 10 households. These pre-selected households are screened for eligibility, and when the first four are found with infants or pre-school children, the enumerators collect data and go on to the next CB. This procedure for selecting households on the CB lists is simple and could be implemented with support from the DCS. Furthermore, the initial selection of 10 households per CB will be made in the Head Office, prior to the enumerators going to the field. It does not matter if, at the screening stage, it is found that a certain family selected in the initial list of ten has moved out of the house and a new family moved in. The new family is screened in place of the old. Finally, it should be mentioned that in the event of an enumerator going through the list of ten pre-selected households and being unable to find four households with eligible children, there are straightforward rules at the DCS for solving this problem.

C. Survey Design Issues

1. Geographical Regions

The geographic regions of Sri Lanka where the survey will be run have been discussed with N&JD personnel. Seven provinces of the country will be surveyed. The North and East Province will be excluded until security problems have been resolved. Even though some areas of the country are thought to be worse off than others from a nutritional standpoint, all areas are equally important.

For example, one would wish to compare different areas of the country with respect to nutritional status in order to target intervention programs where they are needed most. Data are required for all provinces (or districts) for this purpose. It is possible that the geographical distribution of malnutrition is constantly changing, especially given the free-market policies of the GSL. Over time, "good" areas may become "bad" areas, and vice versa. Hence one would want to know about all areas of the country.

2. Sampling Design

The sample design being recommended for nutritional surveillance is the same as that of the Quarterly Labor Force Survey and the 1988/89 Nutritional Status Survey. The sample size will be reduced but the methodology will be essentially the same. Once households are selected for the first survey, the same households can be retained for the second survey with a view to monitoring changes in the population. If desired, a certain number of new households could be introduced into each new round and an equal number withdrawn. For example, if the replacement rate is 20% per year, then after five years, a completely new set of households will have entered the sample.

For the Quarterly Labor Force Surveys, the sample is allocated to districts within provinces and to sectors within districts (see the sample allocation worksheet presented in Appendix B). Next, Census Blocks (CBs) are selected as the primary sampling units (PSUs) with probabilities proportional to size, where size is the number of households listed in the previous survey. The CBs are selected using the systematic selection procedure first presented in Hanson, Hurwitz and Madow, and in W.G. Cochran.

3. Survey Methodology

The survey methodology will be implemented by administering the survey form (see Appendix B) to those selected households having at

least one eligible child. We have tried to ensure that this methodology resembles that of the 1988/89 "benchmark" survey in order to detect changes in nutritional and health status over time.

The plans call for a sample of 2000 survey forms to be completed twice a year (the first round from February to April and the second, from August to October). It is hoped that two surveys will allow the N&JD to obtain seasonal differences within one year.

4. Required Survey Resources

Operational resources are required for:

1) survey form design and approval (although this team has developed a survey form),
2) survey management,
3) sample selection and approval (although this team has selected a sample for the survey),
4) development of an enumerator manual,
5) development of an enumerator training school,
6) obtaining survey resources including vehicles, per diem and enumerators,
7) assignment of teams to the sample,
8) data collection by enumerators,
9) enumerator supervision and field editing (twelve percent of the survey forms were lost in the last survey),
10) manual edit in the office,
11) data entry into the computer,
12) data verification in the computer,
13) computer program development,
14) analysis and summary of the data, and
15) publication of results.

(See p. 29 for a time requirements worksheet.)

5. Implementation Schedule

The survey will be implemented by the N&JD/MPPI. We have attached an implementation plan that has been reviewed by the N&JD and USAID. What ultimately happens will depend on whether adequate resources could be obtained by the N&JD for carrying out this activity on a sustained basis.

We have tentatively estimated the cost of this "project" at around Rs 3,000,000 per annum. Donor support may be required for getting this "project" off the ground (in 1993). If the initial effort is successful, it is likely that the treasury will provide the N&JD with the necessary funding for continuing this activity beyond 1993.

6. Possible Donor Prospects

We have just seen that the N&JD may be initially faced with a funding constraint. Moreover, the N&JD has indicated that it would benefit from foreign technical expertise at key points in the data analysis and summarization process. We are therefore suggesting that donor support be provided to the N&JD at least in the first year of this "project". The donor support may allow the survey to be used for purposes other than GSL nutritional/health status monitoring and policy analysis and formulation. In fact USAID, UNICEF, FAO/UNDP, WFP, World Bank, WHO, ADB, etc., may want to use the results of this survey system to monitor the impact of their own development programs. Of the above agencies, we interviewed only UNICEF because that agency is also designing a nutritional survey system for a few selected areas.

We ascertained that there is little or no overlap between what is being proposed by this study and the "special-purpose", micro-level monitoring system being developed by UNICEF for two or three districts. (We understand from the Director of N&JD/MPPI that this system is being designed primarily to assess the social and economic impact of the Janasaviya program in selected areas. Hence

it will not be generating national-level data.) UNICEF staff have not yet developed the sampling plan or questionnaire, but they expressed interest in this study and said they would like to have a copy of the report (including the questionnaire) after it has been submitted officially to the GSL.

There is one matter of concern for both USAID and UNICEF. Both agencies are working with N&JD/MPPI. Both envisage the N&JD/MPPI collecting roughly 2000 survey forms from the field and publishing the results in a timely fashion. Neither wishes to overload the N&JD/MPPI. We do not think that data collection and entry will be a problem. (The MPPI has a large staff stationed in the field which routinely collects economic data, and the N&JD is in the process of installing a minicomputer system in the head office, which will greatly enhance its data entry, processing and storage capacity. The minicomputer system will be linked to about 15 micro units.)

On the other hand, data analysis, report writing and publication of results are stages that may suffer from bottlenecks, considering that the N&JD is equipped with limited technical staff. As mentioned above, a donor (such as USAID) could provide technical expertise to the N&JD at these critical stages of the exercise (at least in the first year), thereby facilitating publication of survey results. We are confident that once the N&JD staff acquire the necessary experience and training, they will be able to carry on this work on their own. (That is to say, a donor could help by giving the N&JD a "jump start".) The N&JD staff will also benefit considerably by working and interacting with an experienced foreign consultant for a limited period of time.

III. FIELD-TESTING OF SURVEY DESIGN AND FORM

On October 24-25, 1992, the two consultants went to Kalutara district to pre-test both the sample design and the questionnaire developed under this study. (They were accompanied by a USAID/ANR staff member.) For this purpose we had selected two census blocks (prior to leaving on this field trip). There was no difficulty in locating either of the two blocks or the households listed in those blocks. Each household has a serial number and the names of the household heads are recorded on the census listing sheets. In other words, the sampling frame works.

The questionnaire was adapted from other field-proven survey forms, including that developed by the N&JD for the 1988/89 survey. The questionnaire includes items on nutrition, health, employment, occupation, and the standard of living, which will be useful for policy planning and analysis as well as for constructing a functional classification of the population. The terms of reference for this consultancy were clear. The survey form was to be simple to administer, as well as pre-coded to facilitate data entry. (Output tables were not prepared as this was not required by the scope of work.)

The survey forms were field-tested within the two pre-selected census blocks. The interviews took about 30-40 minutes per questionnaire (including the weighing and measuring of children). The interviews went relatively smoothly. We have had to modify the questionnaire in a few places as a result of the field-testing. The form is now ready for more through field-testing by the N&JD/NPPI. **(The form excludes food consumption and expenditure; we leave it to the N&JD to add these items on if it wishes.)**

IV. NOTE ON USAID DEBRIEFING

In the final debriefing at USAID several issues emerged. First, Dr. R.M.K. Ratnayake, Director of the N&JD/MPPI, indicated that he cannot obtain funding from the GSL treasury to implement the survey in 1993 because the budgetary cycle has been completed. USAID indicated that it will consider providing Program Development and Support (PD&S) funds for the first year, but did not make a firm commitment as it has not yet received an FY 93 allocation from AID/Washington.

Second, the Mission Director said he saw how this "project" will benefit the GSL, but asked what the Mission will get out of it. The consultants explained that through this "project", USAID and other donors could track the impact of food aid (as well as other development programs) on the nutritional status of the poor, which serves as a proxy indicator for food security. (As it turned out, there was a communication from AID/Washington asking how the Mission planned to assess the impact of the PL 480 Title III program on food security. It appears that this study was a timely response to that question.)

Third, it was asked by a USAID staff member why the war-torn provinces (i.e., the North and East) were being excluded from the sampling frame. Dr. Ratnayake explained that it was not possible to obtain a representative sample from these areas because the enumerators would not be willing to venture out of the city limits. USAID suggested that certain PVOs, such as CARE, might volunteer to collect data from the outlying areas. Dr Ratnayake said that even if CARE were willing, it would be dangerous for their staff to

travel out of the city limits. He did not believe that local staff would risk their lives to collect survey data.

The same USAID staff member asked why data could not be collected from only the "safe" areas. To answer that question, we had to differentiate between CONVENIENT and REPRESENTATIVE data. We said this "project" was designed to collect nationally representative data, not convenient data, which will undermine the credibility of the survey results. (In other words, they will substantially degrade and distort the findings.) Our position is that convenient data collection should not be a part of this statistical survey, and should be undertaken as a separate activity or "sub-project". Convenient data are never representative. We therefore recommend that these two activities (i.e., representative and convenient data collection) be kept separate.

We believe the monitoring system we have designed will generate useful and credible data over time. The temptation to introduce factors that would doubt the credibility of the survey results should be avoided. The survey system is designed to sample all areas of the country and data could be collected from the North and East after the war situation has ended. Until such time, these areas should not be included in the national sampling frame. It should also be pointed out that households lists obtained from the sample census blocks in the North and East are obsolete. Hence some time will have to be spent initially on updating these household lists. This will be necessary even for collection of data from the "safe" areas.

Fourth, it was asked whether this survey system will have relevance for policy planning and analysis. We indicated that the questionnaire is designed to provide basic data on health, nutrition and selected socio-economic variables. Ideally, we should have prepared key output tables (in consultation with N&JD staff) before designing the questionnaire. This, however, was not

part of our scope of work. In any event, N&JD staff, who have to travel frequently out of Colombo, were not in a position to prepare output tables at short notice. (The duration of this study was only three weeks.)

Nevertheless, a great deal of work went into the questionnaire design and we believe it will provide a critical mass of information for researchers, planners and policy analysts. In fact Dr Ratnayake said what we are recommending will be extremely useful for policy analysis and decision-making because it will be the only tool providing island-wide data on health, nutrition, unemployment, poverty, landlessness, etc., on a routine basis. He said the survey results may surface new policy issues of critical importance to the GSL. He also emphasized that the N&JD, which is directly under the Secretary of MPPI (who is also the Secretary of Finance), was particularly interested in monitoring the impact of the structural adjustment program on the poor, which could be done through the surveillance system we have designed.

V. IMPLEMENTATION SCHEDULE

	Activity	1992 NOV DEC	JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC	JAN FEB MAR APR
1	Survey Concept Approval	xx		
2	Survey Management	xxxxxx	xxxxx

VI. RESOURCE REQUIREMENTS

	Activity	Months /year	Number Persons	Man Months	Cost*
1	Survey Concept Approval N&JD/MPPI	1.0	1	1.0	local
2	Survey Management N&JD/MPPI	12.0	1	12.0	local
3	Sample Selection/Approval Census Bureau	1.0	1	1.0	local
4	Survey Form/Approval N&JD/MPPI	1.0	2	2.0	local
5	Pre-survey Form Test N&JD/MPPI	0.5	2	1.0	local
6	Development of Manual N&JD/MPPI	0.5	1	1.0	local
7	Computer Program Develop. N&JD/MPPI/Donor	1.5	1	1.5	local
8	Develop Enumerators Training School N&JD/MPPI	1.0	1	1.0	local
9	Assign Sample to Teams N&JD/MPPI	0.5	1	0.5	local
10	Data Collection in Field N&JD/MPPI	6.0	35	210.0	local
11	Transportation Fuel	6.0			local
12	Per Diem 100 rupees/day	6.0	35	14.0	local
11	Enumerator Supervision N&JD/MPPI	6.0	7	42.0	local
12	Field Edit N&JD/MPPI	1.0	7	7.0	local
13	Data Entry into Computer N&JD/MPPI	2.0	7	14.0	local
14	Data Verification N&JD/MPPI	1.0	3	3.0	local
15	Summarize Data N&JD/MPPI	2.0	2	4.0	donor?
16	Analyze and Write Report N&JD/MPPI/Donor	3.0	3	9.0	donor?
17	Final Publication N&JD/MPPI	2.0	2	4.0	donor?

* Estimated local cost of implementing survey system is approximately Rs 750 per questionnaire. (Total cost is Rs 3,000,000.)

VII. NOTE ON RESOURCE REQUIREMENTS

1) The N&JD/MPPI will need to study this proposal carefully to understand the various resource requirements. To implement this proposal, these requirements should be fully met.

2) We are recommending that a full-time professional be assigned to manage this work. The survey will be implemented twice a year. Preparation of questionnaires, field manuals and computer programs, data collection, summary and analysis, and writing and publication of survey reports will be a continuing activity.

3) Fortunately, the sample selection is quite simple. The DCS maintains a sampling frame for its quarterly labor force surveys. The DCS is the best statistical agency in Sri Lanka and the labor force sampling frame is the most current. Though this frame is not perfect, it is the best Sri Lanka has to offer, and we believe it is quite adequate for our purposes. Each month DCS personnel list new census blocks. These latest blocks are the best to use for the proposed survey. We recommend selecting a new sample of households based on procedures outlined in this report.

4) Key end-users of nutritional and health data should have the opportunity to review the survey form and comment on the design (before it is finalized).

5) The survey form was pre-tested by the consultants in Kalutara on a small number of households. The form should be pre-tested more broadly and over a wider range of households by N&JD staff.

(6) An interviewer's Manual needs to be prepared to assist in enumerator training and data collection and analysis.

7) A computer programmer will need to develop key output tables for the data collected in the survey forms. The N&JD may have to hire a specialist for this purpose. We understand from the N&JD that limited local expertise is available.

8) An enumerator training facility needs to be developed to familiarize the interviewers with the survey forms and to provide them with field practice.

9) The allocated sample will be given to survey teams. We assume that each province will have two or more teams of interviewers.

10) Data collection in the field will require seven teams of four persons for three months, twice a year. The table shows six months of work. This is for two surveys a year.

11) Each of the seven teams of four interviewers needs one "field manager" to supervise data collection and review survey forms as they are completed. We do not wish to reject survey forms because they were improperly filled, or at least we wish to keep such losses to a minimum. The supervisor's task is to ensure that the survey team fills out the questionnaires properly.

12) Data entry into the computer will start soon after data collection begins. There are simple computer checks for identifying "bad" data, which will enable the N&JD to ascertain what mistakes are being made commonly in the field and to rectify those mistakes without delay. We have assumed that 30-50 questionnaires can be entered by one operator on one terminal in one 8-hour shift. One hundred 8-hour shifts are required to enter 3000 questionnaires. Five computer operators can enter these data

in one month for each survey. Thus two surveys will require five operators for two months.

13) Data verification is another task that requires great care. One way is to double key-punch but there are other methods of verifying data as well.

14) Data summary is simply running the data through the computer software programs (such as SPSS) to develop summary tables. Presumably these data summary techniques have already been developed and refined by the N&JD, so that the computer runs could performed quickly and efficiently.

15) Data analysis requires explaining the tables generated in the previous step. This task should be performed by an expert with a proven track record. It will take several person-weeks of effort to produce a high-quality survey report. We recommend that foreign technical expertise be provided to assist the N&JD with data analysis and report writing in the first year. There is no question that Dr. Ratnayake can produce the survey report, but with other demands on his time, it may take several months for him to complete the task.

16) Publication involves getting camera copies ready for printing. It could be expensive if color photos are used. Certainly Harvard Graphics type charts and figures make publications easier to read and understand.

VIII. WORKSHEET FOR SAMPLE ALLOCATION TO PROVINCES

Province/Dist	1990 Populat*	By Prov	Popul. Indices	Survey Hosholds	Cens Blocks	Alloc to Dist.
Western Province		4387	30.25%	605	151	
Colombo	1935					55
Gampaha	1518					53
Kalutara	934					33
Central Province		2180	15.03%	301	75	
Kandy	1236					43
Matale	414					14
Nuwara Eliya	530					18
Southern Province		2207	15.22%	304	76	
Galle	932					32
Matara	765					26
Hambantota	510					18
Northern Province		1296				
Jaffna	863					
Kilinochchi	99					
Mannar	129					
Vavuniya	114					
Mullaitivu	91					
Eastern Province		1194				
Batticaloa	409					
Amparai	474					
Trincomalee	311					
North Western Prov		1999	13.78%	276	69	
Kurunegala	1410					49
Puttalam	589					20
North Central Prov		1019	7.03%	141	35	
Anuradhapura	705					24
Polonnaruwa	314					11
Uva Province		1045	7.21%	144	36	
Badulla	701					24

Moneragala	344					12
Sabaragamuwa Prov		1666	11.49%	230	58	
Ratnapura	923					32
Kegalle	743					26
Sri Lanka Total	16993	16993	100.00%	2000	500	490

* Source: Department of Census and Statistics, 1991

IX. EXPLANATION OF SAMPLE ALLOCATION

A sample allocation shows how a sample of a certain size is distributed among the provinces and districts. The previous table shows a sample allocation using PPS. Those provinces (and districts) with larger populations are assigned proportionally larger samples.

The first column shows the name of the province and district. The second shows the current population based on the DCS's projections, which are published annually. The third shows the provincial population totals. The fourth shows the percentage of the population in the provinces that will be sampled. The fifth shows the sample of 5000 households that are distributed among the provinces. This number was calculated assuming that 40 percent of all households have children between the ages of 6 and 59 months. Forty percent of 5000 is 2000, the target number of households with children of the required age. The sixth column shows the number of census blocks required to obtain the target number of (2000) households, assuming that four eligible households will be obtained from each census block. The seventh shows the number of census blocks required in each district. This allocation is approximately correct. The final sample allocation will be modified to accommodate the sampling design used by the DCS.

APPENDIX A
TERMS OF REFERENCE
SPECIFIC TASKS TO BE COMPLETED

III. Statement of Work

The consultant will work-in country for about three weeks developing a limited nutrition surveillance activity in collaboration with a local nutritionist. The main counterpart agency for USAID will be the Nutrition and Janasaviya Division of the Ministry of Policy Planning and Implementation (MPPI), which has acquired considerable expertise over time in survey implementation, data processing and analysis, and publication of survey results. The consultant will also have close interaction with relevant Department of Census and Statistics (DCS) staff in developing a suitable sampling design for the serial monitoring of nutritional status in nutritionally depressed areas.

A. Specific Tasks

i. Determine the geographical regions to be monitored that are at risk in terms of protein-energy undernutrition, as well as the most suitable anthropometric indices to be used in assessing the individual nutritional status.

ii. Develop an appropriate sampling design and technique for the above areas and also determine the minimum sample size necessary for estimating the prevalence of malnutrition with a reasonable degree of efficiency and accuracy. It will be left to the discretion of the consultant to decide what an acceptable level of probability is. Since this is meant to be a cost-minimizing exercise (due to limited resources), a "liberal" trade-off should be established between size sample and efficiency that is nevertheless "statistically" acceptable.

iii. Develop a suitable survey methodology, i.e., determine the form and content of the questionnaire. Due to the limited scope of this activity (i.e., it is not meant to be a full-blown socio-economic survey), critical judgement should be exercised in determining an optimal length for the questionnaire.

iv. Undertake (a) an inventory of the resources required (equipment, trained personnel, computer facilities, etc.) for survey implementation, data entry processing and analysis, and publication of findings; and (b) a critical assessment of the facilities and capabilities of the Nutrition and Janasaviya Division (the proposed implementing agency) in this regard, highlighting any constraints and possible solutions to those constraints.

v. Prepare (a) an implementation schedule, and (b) a cost estimate and financial plan for a "special-purpose" survey to be conducted in the selected nutritionally depressed areas, in 1993. The latter should include both the start-up and recurrent costs of sustaining this activity on a periodic (possibly biannual) basis. The feasibility of funding proposed activity out of 480 Title III local currency proceeds should also be examined.

vi. Identify prospects (if any) for undertaking collaborative work with other donors collecting primary health and nutrition data so as to minimize survey, data processing and publication costs; and outline suitable coordinating mechanisms.

B. Deliverables

The consultant will, in collaboration with the local nutritionist, prepare a draft proposal as outlined in Items III.A.i thru III.A.vi. (above), which will be submitted to USAID and the counterpart agency (two copies each) four days prior to his departure from Sri Lanka. (Items III.A.iii, III.A.iv and III.A.vi could be attached as Annexes, if desired). The proposal will be jointly reviewed by USAID and

the Janasaviya and Nutrition Division. The draft will be revised by the consultants incorporating relevant comments and suggestions, and five copies of the final report submitted to USAID and three copies to the Janasaviya and Nutrition Division, prior to departure of the U.S. consultant.

Confidential

The information collected in this survey will be strictly confidential and individual level information will not be divulged to any person or agency

Year	Month	Province	Sector	District

APPENDIX B

A SURVEY SYSTEM FOR

THE SERIAL MONITORING OF NUTRITIONAL AND HEALTH STATUS IN SRI LANKA

SURVEY SCHEDULE

(To be implemented biannually)

Designed for the

NUTRITION AND JANASAVIYA DIVISION
MINISTRY OF POLICY PLANNING AND IMPLEMENTATION

by the

UNITED STATES AGENCY FOR INTERNATIONAL DEVELOPMENT

(October 1992)

Identification Information

1. Address (Location):- .....
2. Province:- .....
3. District:- .....
4. A.G.A. Division:- .....
5. Name of M.C/U.C/T.C:- .....

   (If Urban Sector)

   Ward No:- .....
6. G.S. Division: Number ..... Name .....

   (If Rural or Estate Sector)
7. Name of Village:- .....

   (If Rural Sector)
8. Name of Estate:- .....

   (If Estate Sector)
9. Census Block No:- ..... Serial No. of Housing Unit .....
10. Month:- [ ]
11. Number of Households:- [ ]
12. Name of head of this household:- .....
13. Interviewer's

    Name:- .....

    Signature:- ..... Date:- .....
14. Supervising Officer's

    Name:- .....

    Signature:- ..... Date:- .....

15A. *For office use only*

Year	Quarter	Province	Sector	District

15B.

Block Number Within Stratum	Housing Unit Number Within the block	H hold Number

Control Data

Interviewer's Visits	1 st	2 nd	3 rd
1. Date			
2. Result *			minutes
3 Time taken to Complete the Schedule	minutes	minutes	

*** Results Codes**

Completed 1

Deferred 2

Ineligible * * 3

No competent respondent at home 4

Refused 5

Housing unit is temporarily closed 6

Other (Specify) 7

* * Specify the reason to be ineligible

(i) Vacant

(ii) Seasonal

(iii) Non-residential

(iv) Destroyed

4. If the housing unit is consolidated,
   No. of H.U's listed for this unit

5. If the housing unit is divided,
   No. of H.U's in this unit as at present

6. *For office use only*

Final Result Code. ... .

Completed 1
Partially Completed, usable 2
Partially Completed, unusable 3
Not Completed 4
Ineligible 5

Codes for Personal Characteristics

Col. 3 : Relationship to Head of Household

Head of the Household	1
Wife/Husband	2
Son/Daughter	3
Parents	4
Other Relative	5
Domestic Servant	6
Boarder	7
Lodger	8
Other	9

Col. 4 : Sex

Male	1
Female	2

Col. 6 : Ethnic Group

Sinhalese	1
Sri Lanka Tamil	2
Indian Tamil	3
Sri Lanka Moor	4
Malay	5
Burgher	6
Other	7

Col. 7 : Religion

Buddhist	1
Hindu	2
Muslim	3
Roman Catholic/Other Christian	4
Other	5

Col. 8 : Marital Staus

Never Married	1
Married	2
Widowed	3
Divorced	4
Separated	5

Col. 9 : Educational Attainment

No Schooling	0
Passed Grade 0 - 4/passed 1 - 5 year	1
Passed Grade 5 - 7/passed 6 - 8 year	2
Passed Grade 8 - 9/passed 9 - 10 year	3
Passed G.C.E. (O/L)/N.C.G.E.	4
Passed G.C.E. (A/L)/H.N.C.E.	5
Degree	6
Post Graduate Degree/Diploma	7

Personal Characteristics

Serial No	Names of Individuals who usually live here **PERMANENTLY** including those temporarily absent. (Include permanent boarders, lodgers, servants, etc. and exclude temporary visitors)	Relationship to Head of Household	Sex	Age in years (enter with two decimals)	Ethnic Group	Religion	Marital Status
1	2	3	4	5	6	7	8
01							
02							
03							
04							
05							
06							
07							
08							
09							
10							
11							
12							
13							
14							
15							

Serial No	Educational Attainment (5 years & older)	Did (S)He have Voc/Tech Training? Yes 1 No 2 (10 years & over)	Vocational/Technical Training			Only for household members presently working overseas and remitting foreign exchange		
			Type	Formal 1 Informal 2	Duration in Months	Country	Occupation	Duration (months)
	9	10	11	12	13	14	15	16
01								
02								
03								
04								
05								
06								
07								
08								
09								
10								
11								
12								
13								
14								
15								

* For Office Use Only

Labor Force Items (for persons 10 years of age & over)

01.	Name of individual										
	Serial Number										
02	During the past week, did (s)he work at least one hour for pay, profit, or family again?	Yes	1	GO TO Q. 10	1	GO TO Q 10	1	GO TO Q. 10	1	GO TO Q. 10
		No	2	GO TO Q. 03	2	GO TO Q. 03	2	GO TO Q. 03	2	GO TO Q. 03
03.	Does (s)he have a current job even though (s)he did not work last week?	Yes	1	GO TO Q. 04	1	GO TO Q. 04	1	GO TO Q. 04	1	GO TO Q. 04
		No	2	GO TO Q. 06	2	GO TO Q 06	2	GO TO Q. 06	2	GO TO Q. 06
04	Why did (s)he not work last week even though (s)he has a current job?									
	Illness or poor health		1	GO TO Q. 10	1	GO TO Q. 10	1	GO TO Q. 10	1	GO TO Q. 10
	Injury		2	GO TO Q. 10	2	GO TO Q. 10	2	GO TO O. 10	2	GO TO Q. 10
	Holiday, vacation or leave		3	GO TO Q. 10	3	GO TO Q. 10	3	GO TO Q. 10	3	GO TO Q. 10
	Bad weather		4	GO TO Q. 10	4	GO TO Q 10	4	GO TO Q. 10	4	GO TO Q. 10
	Funeral or wedding		5	GO TO Q. 10	5	GO TO Q. 10	5	GO TO Q. 10	5	GO TO Q. 10
	Personal crisis		6	GO TO Q. 10	6	GO TO Q. 10	6	GO TO Q. 10	6	GO TO Q. 10
	Reduction in economic activity		7	GO TO Q. 05	7	GO TO Q. 05	7	GO TO Q. 05	7	GO TO Q. 05
	Other reason (specify)		8	GO TO Q 10	8	GO TO Q. 10	8	GO TO Q. 10	8	GO TO Q. 10

	Serial Number				
05	What is the reason for reduction in economic activity?	GO TO Q. 10	GO TO Q. 10	GO TO Q. 10	GO TO Q. 10
	Strike	1	1	1	1
	Power shortage or failure	2	2	2	2
	Mechanical failure	3	3	3	3
	Water shortage	4	4	4	4
	Raw material or fuel shortage	5	5	5	5
	Other (specify)	6	6	6	6
06.	Why did(s)he not work last week?				
	(S)he is looking for work but cannot find a job	1 GO TO Q. 07	1 GO TO Q. 07	1 GO TO Q 07	1 GO TO Q. 07
	His/her work is seasonal	2 GO TO Q. 10	2 GO TO Q. 10	2 GO TO Q. 10	2 GO TO Q. 10
	(S)he is not interested in having a job	3 GO TO Q. 09	3 GO TO Q. 09	3 GO TO Q. 09	3 GO TO Q. 09
07	How long has (s)he been looking for a job (i e., how many weeks)?	GO TO Q. 08	GO TO Q 08	GO TO Q. 08	GO TO Q. 08
08.	Why is (s)he unable to find work?	GO TO Q. 24	GO TO Q. 24	GO TO Q. 24	GO TO Q. 24
	No jobs are available	1	1	1	1
	Jobs are available but (s)he has no qualifications or skills	2	2	2	2

	Serial Number				
09	Why is (s)he not interested in having a job ?	GO TO Q. 24	GO TO Q 24	GO TO Q. 24	GO TO Q. 24
	Family responsibilities	1	1	1	1
	Studies	2	2	2	2
	Retirement or old age	3	3	3	3
	Illness or poor health	4	4	4	4
	Injury or physical disability	5	5	5	5
	Other reason (specify)	6	6	6	6
10	Main ocuupation (category)				
	Farmer (owner-operator)	1	1	1	1
	Tenant Cultivator	2	2	2	2
	Fisherman	3	3	3	3
	Wage worker (specify occupation)	4	4	4	4
	Other specify (example, foreman, technician, teacher, bank teller)	5	5	5	5

	Serial Number														
11	Main Occupation (economic sector)														
	Agriculture/forestry	1			1			1			1				
	Fishenes	2			2			2			2				
	Mining	3			3			3			3				
	Manufacturing	4			4			4			4				
	Construction	5			5			5			5				
	Transportation	6			6			6			6				
	Trade	7			7			7			7				
	Services	8			8			8			8				
12.	Main ocuupation (institutional sector)														
	Government	1			1			1			1				
	Private	2			2			2			2				
13.	Nature of main occupation														
	Full-time	1	GO TO Q. 16		1	GO TO Q. 16		1	GO TO Q. 16		1	GO TO Q. 16			
	Part-time	2	GO TO Q. 16		2	GO TO Q 16		2	GO TO Q. 16		2	GO TO Q. 16			
	Seasonal	3	GO TO Q. 14		3	GO TO Q. 14		3	GO TO Q. 14		3	GO TO Q. 14			
14.	If currently not working, when did (s)he last perform seasonal work for pay, profit, or family gain (i e., how many weeks ago)?	GO TO Q. 15			GO TO Q 15			GO TO Q. 15			GO TO Q. 15				

	Serial Number				
15	Duration of seasonal work performed during past year (i e Total of how many weeks)?	GO TO Q. 16	GO TO Q 16	GO TO Q 16	GO TO Q 16
16	Does (s)he do any secondary work for pay, profit or family gain? Yes	1 GO TO Q 17	1 GO TO Q 17	1 GO TO Q 17	1 GO TO Q. 17
	No	2 GO TO Q 22	2 GO TO Q 22	2 GO TO Q. 22	2 GO TO Q 22
17.	Secondary occupation (category)				
	Farmer (owner-operator)	1	1	1	1
	Tenant Cultivator	2	2	2	2
	Fisherman	3	3	3	3
	Wage worker (specify occupation)	4	4	4	4
	Other specify (example, foreman, technician, teacher, bank teller)	5	5	5	5

	Serial Number											
18	Secondary Occupation (economic sector)											
	Agriculture forestry	1			1			1			1	
	Fisheries	2			2			2			2	
	Mining	3			3			3			3	
	Manufacturing	4			4			4			4	
	Construction	5			5			5			5	
	Transportation	6			6			6			6	
	Trade	7			7			7			7	
	Services	8			8			8			8	
19	Secondary occupation (institutional sector)											
	Government	1			1			1			1	
	Private	2			2			2			2	
20	Nature of secondary occupation											
	Full-time	1	GO TO Q. 22		1	GO TO Q 22		1	GO TO Q. 22		1	GO TO Q. 22
	Part-time	2	GO TO Q. 22		2	GO TO Q. 22		2	GO TO Q. 22		2	GO TO Q. 22
	Seasonal	3	GO TO Q 21		3	GO TO Q. 21		3	GO TO Q. 21		3	GO TO Q 21
21	Duration of seasonal work (secondary) performed during past year (i.e., how many weeks)?	GO TO Q 22			GO TO Q 22			GO TO Q. 22			GO TO Q 22	

Serial Number												
22. Does (s)he miss work often?	Yes	1	GO TO Q 23	1	GO TO Q. 23	1	GO TO Q 23	1	GO TO Q. 23
	No	2	GO TO Q. 24	2	GO TO Q 24	2	GO TO Q. 24	2	GO TO Q. 24
23. What is the reason for missing work often?									
Illness or poor health		1		1		1		1	
Injury		2		2		2		2	
Holiday, vacation or leave		3		3		3		3	
Bad weather		4		4		4		4	
Funeral or wedding		5		5		5		5	
Work not available		6		6		6		6	
Both 1 and 6		7		7		7		7	
Other specify		8		8		8		8	

Pre-school Items (for persons 6 to 59 months of age)

| | | |

Serial Number				
34 History of Diarrhoea during the past 30 days — Yes	1	1	1	1
No	2	2	2	2
35 Duration of the last attack of Diarrhoea (number of Days)				
36. Treatment taken for the last attack of Diarrhoea — Western (clinic)	1	1	1	1
Indigenous	2	2	2	2
None	3	3	3	3
37. History of Malaria within last year — Yes	1	1	1	1
No	2	2	2	2
38. Duration of the attack of Malaria (number of Days)				

Serial Number				
39. Treatment taken for the last attack of Malana				
Western (clinic).	1	1	1	1
Indigenous	2	2	2	2
None	3	3	3	3
40 History of wheezing within the last year Yes	1	1	1	1
No	2	2	2	2
41. Duration of the last attack of wheezing (number of Days)				
42. Treatment taken for the last attack of Wheezing				
Western (clinic)	1	1	1	1
Indigenous	2	2	2	2
None	3	3	3	3
43. History of simple continued fever within the last 30 days Yes	1	1	1	1
No	2	2	2	2

Serial Number				
44 Duration of the last attack of simple continued fever (number of Days)				
45. Treatment taken for the last attack of simple continued fever				
Western (clinic)	1	1	1	1
Indigenous	2	2	2	2
None	3	3	3	3
46 History of Measles within the last 30 days — Yes	1	1	1	1
No	2	2	2	2
47 Duration of the last attack of Measles (number of Days)				
48 Treatment taken for the attack of Measles				
Western (clinic)	1	1	1	1
Indigenous	2	2	2	2
None	3	3	3	3

Serial Number												
49 History of Chicken Pox within the last year 30 days	Yes	1			1			1			1	
	No	2			2			2			2	
50 Duration of the attack of Chicken Pox (number of Days)												
51 Treatment taken for the attack of Chicken Pox												
Western (clinic)..		1			1			1			1	
Indigenous		2			2			2			2	
None		3			3			3			3	
52. History of Viral Hepatitis within the past 6 months	Yes	1			1			1			1	
	No	2			2			2			2	
53. Duration of the attack of Viral Hepatitis (number of Days)												

Serial Number				
54 Treatment taken for the attack of Viral Hepatitis				
Western (clinic)	1	1	1	1
Indigenous	2	2	2	2
None	3	3	3	3
55. History of injury within the past 30 days — Yes	1	1	1	1
No	2	2	2	2
56. Duration of incapacity due to the injury (number of Days)				
57 Treatment taken for injury				
Western (clinic)	1	1	1	1
Indigenous	2	2	2	2
None	3	3	3	3
58 Given BCG vacination				
Western (clinic)	1	1	1	1
Indigenous	2	2	2	2
None	3	3	3	3

Serial Number				
59. Given Polio vaccination				
Complete	1	1	1	1
Incomplete	2	2	2	2
Not given	3	3	3	3
60. Given the Triple vaccination				
Complete	1	1	1	1
Incomplete	2	2	2	2
Not given	3	3	3	3
61. Given the Measles vaccination				
Complete	1	1	1	1
Incomplete	2	2	2	2
Not given	3	3	3	3
62 Given a course of Tetanus Toxoid				
Complete	1	1	1	1
Incomplete	2	2	2	2
Not given	3	3	3	3

Serial Number				
63. How many days during the past 4 weeks was (s)he unable to continue normal diet regime due to illness? (If applicable)				
64. How many times within the last 4 weeks did (s)he need medical attention? (Skip if not applicable)				
Once	1	1	1	1
Twice	2	2	2	2
More	3	3	3	3
65 How many times within the last 4 weeks did (s)he need in-ward treatment? (Skip if not applicable)				
66. Duration of in-ward treatment (number of Days) (Skip if not applicable)				
67. Does (s)he receive thriposha? Yes	1	1	1	1
No	2	2	2	2
68. Does (s)he receive mid -day meal or breakfast at school? Yes	1	1	1	1
No	2	2	2	2

Items for the Mother

69.	Name of individual				
	Serial number				
70.	Age at marriage (years)				
71.	Adoption of birth control by mother or father				
	Never practices	1	1	1	1
	Only in the past	2	2	2	2
	Only at present	3	3	3	3
	Both in past and present	4	4	4	4
72.	If birth control never adopted, state reason				
	Lack of awareness	1	1	1	1
	Lack of practice	2	2	2	2
	Beliefs and prejudices	3	3	3	3
	Want to have more children	4	4	4	4
73.	If birth control never adopted due to lack of awareness, will you adopt it if enlightened? Yes	1	1	1	1
	No	2	2	2	2

Serial Number				
74. Do you use the facilities of the MCH clinics?				
Yes	1	1	1	1
No	2	2	2	2
75. Were you visited by mid wife during your last pregnancy?				
Regularly	1	1	1	1
Not regularly	2	2	2	2
Once	3	3	3	3
Never	4	4	4	4
76. Were you visited by mid wife during the first month post-natal?				
Yes	1	1	1	1
No	2	2	2	2
77. What type of physician most consulted during the last pregnancy, in relation to the pregnancy?				
Western (clinic)	1	1	1	1
Ayurvedic	2	2	2	2
None	3	3	3	3

Serial Number				
78 Weight gain during your last pregnancy				
Between 5-10 kg	1	1	1	1
10 kg and more	2	2	2	2
79 Complications during your last pregnancy				
High blood pressure	1	1	1	1
Anemia	2	2	2	2
Diabetes	3	3	3	3
Not applicable	4	4	4	4
80. Mother has been advised about food/ childcare by midwife and/ or paramedical personnel since the birth of the first child				
Yes	1	1	1	1
No	2	2	2	2
81. Feeding your youngest child during infancy				
Breast milk only	1	1	1	1
Breast milk + Infant formula	2	2	2	2
Infant formula only	3	3	3	3

62

Serial Number				
82. Duration of breast feeding of your youngest child (in months)				
83. Age when your youngest child was introduced to weaning food (in months)				
84. Type of weaning food given to your youngest child				
Commercial	1	1	1	1
Home prepared only	2	2	2	2
Both	3	3	3	3
85 If you have more than one child - the age difference between your youngest child and your previous child				
One year	1	1	1	1
Two years	2	2	2	2
More than two years	3	3	3	3
86 Do you have a health card for your child/ children? Yes	1	1	1	1
No	2	2	2	2

General Household Items

Serial number of housing unit			
87. Source of drinking water in your house			
Tap	1		
Well	2		
River	3		
Other (specify)	4		
88. Drinking water in the house is boiled			
Yes	1		
No	2		
89. What is your main meal for the day?			
Breakfast	1		
Lunch	2		
Dinner	3		
90. How many meals do you have per day?			
One	1		
Two	2		
Three	3		

	Serial number of housing unit		
91	Main source of animal protein in your food - how namy times a week do you prepare it (specify which food - milk, eggs, fish or meat)?		
92	Do you receive food stamps?	Yes	1
		No	2
93	No of Rooms in your house (separate) *(write the number)*		
94	Do your children have separate sleeping area?		
		Yes.	1
		No	2
		Yes, but they sleep ... with parents	3
95	What toilet facility is available in your house?		
		Not available	1
		Flush type	2
		Bucket type	3
		Pit type	4
		Other (specify)	5 .....

Serial number of housing unit			

96 Distance usually travelled to get medical treatment

(Enter below whether hospital, health clinic or Ayurvedic doctor)

less than 1 km.	1
less than 2 km	2
more than 2 km	3

97 Were there any child deaths due to illness in your family?

(If Yes, state reason)

....Yes	1
.... No	2

.....

.....

.....

98. Were there any child deaths due to other reasons in your family?

(If Yes, state reason)

..... Yes	1
.... No	2

.....

.....

.....

.....

99. Are you a Janasaviya recipient? ....Yes 1

.. .. No 2

	Serial number of housing unit				
100	How many wall clocks do you (Household) own?				
101	How many radios do you (Household) own?				
102	How many televisions do you (Household) own?				
103	How many sewing machines do you (Household) own?				
104	How many bullock carts do you (Household) own?				
105	How many bicycles do you (Household) own?				
106	How many motorcycles/ scooters do you (Household) own?				
107	How many cars do you (Household) own?				
108	How many buses do you (Household) own?				
109	How many lorries do you (Household) own?				
110	Area normally planted to home garden crops (Acres) enter with one decimal				
111	Extent of highland normally owned, leased or share-cropped by Household (Acres) enter with one decimal				
112	Extent of paddy land normally owned, leased or share-cropped by Household (Acres) enter with one decimal				

113 Do one or more Household member(s) usually do chena cultivation?

.... Yes	1
.. .. No	2

114. Source of water supply for paddy cultivation (if applicable)

Major irrigation	1
Minor irrigation	2
Rainfed.....	3

	Serial number of housing unit			
115.	How many cattle owned by Household?			
116	How many buffalos owned by Household?			
117	How many goats owned by Household?			
118	How many pigs owned by Household?			
119	How many poultry birds owned by Household?			
120.	How many ducks owned by Household?			
121.	What is the most important commercial crop usually cultivated by Household? (if applicable)			
	Tea.			
	Rubber			
	Coconut			
	Paddy			
	Chillies			
	Onions			
	Potatoes			
	Other (specify)			.....