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MAHAWELI ENTERPRISE DEVELOPMENT

MED/EIED PROJECT

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REPORT OF THE CENSUS EXPERT AND STATISTICIAN ON THE CENSUS OF MAHAWELI ENTERPRISES

by

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INTERNATIONAL SCIENCE AND TECHNOLOGY INSTITUTE, INC.

WITH :

ERNST & YOUNG CONSULTANTS (Sri Lanka)
DEVELOPMENT ALTERNATIVES, INC.
HIGH VALUE HORTICULTURE, PLC.
SPARKS COMMODITIES, INC.
AGROSKILLS, LTD

CONSULTANTS TO THE MAHAWELI AUTHORITY OF SRI LANKA

The Mahaweli Enterprise Development Project

The Government of Sri Lanka and the international donor community have given high priority to the development of the natural and human resources of the Mahaweli river basin. The first phase of this development, the construction of dams, irrigation and power systems, roads and other physical infrastructure, is largely complete. The second phase, settling the land and forming an agricultural production base, is well under way. The third phase, the major challenge for the 1990's, is the building of a diverse and dynamic economy, improving employment and income prospects for Mahaweli settlers and their families. In this phase the private sector has a leading role to play.

The Mahaweli Enterprise Development Project (MED) is a USAID-supported initiative of the Mahaweli Authority of Sri Lanka to promote investment and business development in agribusiness, manufacturing, tourism, minerals and services. MED directly assists small, medium and large-scale investors with technical assistance, marketing support, training, business advisory services and credit. MED also provides policy assistance to improve access to resources, such as land, water and capital, and the legal and institutional framework for enterprise development.

The official MED implementing agency is the Employment, Investment and Enterprise Development Division of the Mahaweli Authority. The main MED technical consultancy is provided by a consortium led by the International Science and Technology Institute, Inc., a private consulting firm with head offices in Washington DC. Other firms in the consortium are Agroskills, Development Alternatives, Ernst and Young, High Value Horticulture and Sparks Commodities. Marketing services are provided by SRD Research and Development Group, Inc.

PREFACE

ISTI consultant Mr. L.N. Perera, a census expert and statistician, provided technical oversight and quality control for the 1992 census of Mahaweli enterprises and employment. His report will be useful as a companion volume to the census report to those interested in understanding the design, methodology and procedures of the census.

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INTRODUCTION

The consulting firm, TEAMS, was sub-contracted by ISTI to undertake a census of enterprises in the Mahaweli areas.

The main purpose of the census was to:

1. establish a series of baseline indicators against which the progress of the MED project would be evaluated in 1994/95; and
2. set up a practical post-census sampling mechanism to monitor key indicators and trends on a quarterly or bi-quarterly basis throughout the life of the project.

The services of the consultant were obtained by ISTI to ensure that the census was carried out according to strict statistical methods and that the final product would be valid and reliable.

In terms of his assignment, the consultant was expected to perform the following services:

1. Advise on the design of the questionnaire and its field testing.
2. Advise on census methodology, sampling techniques, the framework for setting up periodic sample surveys.
3. Assist on the training of enumerators.
4. Spot check field operations during actual census to observe and advise, if operations were not going according to plan.
5. Oversee data entry.
6. Advise on report presentation and analysis.
7. Write final report on activities covering the following:
 - (a) the days worked and the specific assistance provided.
 - (b) detailed description of the quality control measures recommended.
 - (c) certification that the census and survey plan are statistically sound and that they have followed accepted sampling techniques and procedures.
 - (d) comments on the final census report.

The consultant wishes to place on record the unstinted co-operation extended to him by TEAMS consultants throughout his assignment and their willingness to accept whatever advice and assistance he could render in carrying out the census project successfully.

The report of the consultant on the above lines is submitted herewith.

1. DAYS WORKED AND SPECIFIC ASSISTANCE PROVIDED TO TEAMS

8 July 92 : 10 am - 1 pm

Preliminary meeting with MED Consultants and Managing Director (TEAMS) at which the technical proposals of TEAMS for the census project were tabled and reviewed. The consultant participated in the discussion that followed. While recognizing the need to collect basic data to conform as far as possible to the information now being canvassed by MED and what was collected during the ARTI survey, the consultant stressed the importance of ensuring that the methodology and procedures used at the census conformed to the standards laid down by the UN for such purposes suitably adapted to meet local circumstances and requirements. The consultant agreed to study the TEAMS technical proposals in detail and advise the TEAMS consultants on whatever changes that were necessary at the planning stage.

20 July 92 : 9 am - 12 noon and 21 July 92 : 9 am - 12 noon

Read through report on Technical Proposals prepared by TEAMS and made note of sections in the report which needed clarification and revision. Alternative proposals for consideration at the next meeting of technical consultants were also drawn up.

27 July 92 : 10 am - 1 pm

Meeting at MED office with TEAMS consultants. Discussed proposed work plan for census project. It was agreed to extend the time period to 14 weeks instead of the original 12 weeks in order to ensure the smooth operation of the census programme through its various stages. The questionnaire and the instructions prepared by TEAMS in their revised form were discussed at length and a number of revisions were agreed to. These included changes in concepts and definitions and classifications to conform to standards prescribed by the UN. The consultant agreed to assist TEAMS in effecting these revisions.

30 July : 9 am - 12 noon

Meeting at MED office with MIS Consultant, where the sector and sub-sector classification of all enterprises to be used in the census was finalised according to UN specifications suitably adjusted to meet local needs and requirements. This information was thereafter made available to TEAMS.

4 August 92 : 9 am - 1 pm

At TEAM's office. Examined in detail the draft questionnaire and instructions drawn up by TEAMS consultants for the field test. Advised TEAMS on the procedures to be followed in testing the questionnaire and the need to have a feed-back from the local MED officials as well as the investigators themselves on the logistics of the survey and problems encountered in filling the questionnaire, so that their observations could be taken note of before finalising the details of the field programme and the questionnaire itself.

6 August 92 : 8 am - 4 pm

Visited Mahaweli System G (Bakamuna) with MSL consultant to oversee field testing of draft questionnaire by TEAMS consultants and field staff. Participated in the instruction class preceding and the discussion which followed the field test. Clarified and sorted out a number of problems on the spot and noted down several other important points which needed to be taken into consideration when preparing the logistics of the survey and the questionnaire itself. Survey procedures and the work to be allocated to the respective field staff were reviewed. It was decided to assign graduate supervisory staff to undertake the field work in the townships where most of the enterprises are concentrated in addition to their supervising the work of the other field staff in the rural areas.

11 August 92 : 9.30 am - 11.30 am

AT MED office. Discussed with MSL consultant several issues concerning the scope and content of the census, especially with regard to the type of enterprises to be covered, the concepts and definitions and classification of employment etc. regarding which specific instructions had to be given to TEAMS.

14 August 92 : 10 am - 1 pm

Meeting at MED office at which MED consultants as well as TEAMS consultants were present to review progress of work and to sort out any problems needing solution. Preparatory work on census methodology had been almost completed but for a few outstanding issues relating to coverage, questionnaire design and logistics of the survey. A broad consensus was arrived at with regard to the criteria to be adopted in selecting the enterprises to be covered at the census. Teams consultants were to re-define the types of enterprises on these lines for the guidance of the field investigators. The draft questionnaire was tabled and it was agreed to make certain revisions particularly in regard to employment data and financial transactions so as to conform to the standard methodology and the requirements of MED authorities.

18 April 92 : 9.30 am - 12.30 pm

At TEAMS office. The revised questionnaire prepared by TEAMS was studied in detail along with the relevant instructions. On the whole the questionnaire had been drawn up according to specifications and guidelines provided by the Consultant on behalf of the MED authorities. But, there were a few sections in the instructions to field enumerators which needed clarification or revision and which the TEAMS Consultant agreed to do.

25 August 92 : 8 am - 4 pm and 26 August 92 : 8 am - 4 pm

Attended training classes conducted by TEAMS for field investigators at Bakamuna (System G) and Madatugama (System H). The Team leader together with a Team Consultant and the Chief Supervising officer conducted the classes at which the concerned MED officials were also present. The objective of the survey and the procedures to be followed in undertaking the survey and the instructions for completing the questionnaire were explained in detail. The consultant assisted the TEAMS group in

elucidating and clarifying some of the issues which were raised at the instruction class. Subsequently the enumerators were sent in groups along with a field supervisor to fill the questionnaire in respect of a few selected enterprises and at the end of this exercise the filled up forms were examined by the consultants and necessary corrections made and explained in their presence and difficulties resolved.

The same procedure was followed at Madatugama (System H) where graduate field officers were engaged to supervise the work of the field officers in the rural areas while covering the town areas on their own. Consultant also visited Kekirawa to check on the boundary problem and to determine the exact physical area to be covered at the census.

4 September 92 : 9 am - 11 am

Checked up arrangements made at TEAMS office for editing and coding and data entry. Two graduate officers were employed for this purpose under the immediate supervision of the Team leader. Also visited MED office and fixed up field program for system B.

8 September 92 : 8 am - 4 pm and 9 September 92 : 8 am - 4 pm

Attended training classes for field enumerators at Dimbulagala and Vijayabapura in System B. There were many problems peculiar to the area which were brought to the notice of the consultants both by the MED officials as well as enumerators, which were resolved. One such problem of over-riding importance was the question of livestock herds belonging to families who employed no paid labour and therefore did not qualify for inclusions in the survey. In view of the large numbers involved, it was decided to include such enterprises if they engaged at least one or the equivalent of one paid or unpaid worker. Another problem peculiar to this area was the prevalence of terrorist activity in some of the border villages. A few such villages had to be left out of the survey; but for the most part enumeration was to be done wherever possible by the resident field investigators with or without supervision.

15 September 92 : 9 am - 11 am

At TEAMS office. The editing and coding of forms received from systems G and H were in progress. The consultant's advise was sought with regard to the corrective action to be taken in many instances where the forms had been incorrectly filled or had been completed in respect of enterprises which strictly did not qualify for inclusion in the census. The consultant stressed the need for additional checks to be made by the supervisors in the field before submission of forms to Head Office in order to minimise such lapses.

22 September 92 : 9 am - 4 pm and 23 September 92 9 am - 4 pm

Attended training classes at Dehiattakandiya and Girandurukotte (System C). The TEAMS Consultants along with the Chief Field Supervisor conducted these classes and the consultant's advise was sort in many instances where clarification was needed in filling the questionnaire and in regard to the choice of enterprises for inclusion in the survey.

At the end of the day the questionnaires completed by the investigators in respect of a few sample enterprises were examined and further instructions given wherever necessary.

7 October 92 : 8 am - 4 pm and 8th October : 8 am - 4 pm

Visited Uda Walawe and participated in two training classes for field investigators conducted by TEAMS at Embilipitiya and Suriyawewa. In view of the relatively high concentration of enterprises in Embilipitiya, the consultant advised TEAMS to make special arrangements with regard to the allocation of field staff in that area so that the work would be completed efficiently and on schedule. Many new problems peculiar to the area which were brought to the notice of the consultants by both the MED officials as well as the field investigators were sorted out satisfactorily.

The consultant also took the opportunity to study the set of draft tables prepared by the TEAMS leader for inclusion in the report. It was observed that these tables were inadequate for the purpose since some of the tables listed in the original terms of reference were inadvertently omitted. The consultant agreed to supply a more comprehensive set of tables which would include the basic tables required by MED as well as supplementary tables derived from census data.

13 October 92 : 9 am to 11 am

The table formats prepared by TEAMS on the lines recommended by the consultant were examined in detail and finalised with only a few changes; the order in which they were to appear in the report was also decided.

15 October 92 : 9.30 am to 11.30 am

Met MASL consultant and discussed several matters with regard to the progress of the field survey and the processing and tabulation of data. MSL consultant was advised to visit TEAMS Office and check on the data entry procedures followed by TEAMS and to make available to them a complete list of enterprises included in the current MED survey in order to ensure that they were covered at the census.

20 October 92 : 9 am - 11 am

At TEAMS office. Reviewed progress of field work and the editing, coding and processing of data. It was observed that there were certain problems relating to coverage and delays in the submission of completed forms by the field officers. On the advise of the consultant it was decided that the TEAMS consultant in charge of field operations and a few of the supervisory officers visit the townships in particular and ensure that all eligible enterprises are covered in full. At the same time they were to inquire into and take appropriate action to minimise the delays in forwarding completed questionnaires to Head Office.

27 October 92 : 9 am - 11 am

At TEAMS Office. Discussed with the TEAMS Leader certain problems with regard to the editing and coding of data and data entry procedures and decided on appropriate action to be taken in this regard.

29 October 92 : 9 am - 11 am

At TEAMS Office. Examined draft tables prepared for system G as a trial exercise. Suggested certain improvements to be made in the table formats and the order in which they were to be presented. Also stressed the importance of checking the data for errors and inconsistencies in the several tables.

5 November 92 : 9 am - 11 am

At TEAMS office. Discussed with TEAMS consultants the lines on which the census report was to be prepared. They agreed to provide consultant with a draft format of the census report for comments.

10 November 92 : 9 am - 11 pm

At TEAMS Office. Scrutinized the tabulated data for systems G, C, B and H on the basis of the information already available. A number of errors and inconsistencies in the data were detected and it was agreed that more systematic checks should be made at the data entry stage to ensure that these deficiencies were reduced to a minimum.

17 November 92 : 9 am - 12 noon

At TEAMS Office. Discussed in detail the format of the draft census report prepared by TEAMS including the various sections, chapters, sub-heads and tables and the order in which they were to appear in the census report. Several changes suggested by the consultant in this regard were agreed to by TEAMS.

27 November 92 : 9 am - 11 am

Read through the first draft of the section on census methodology prepared by TEAMS and made note of certain points for further discussion and clarification.

29 November 92 : 9 am - 11 am

At TEAMS office. Section I of the census report was discussed and most of the comments made by the consultant were taken note of by the TEAMS leader who agreed to make the necessary revisions in the text. She also agreed to delete a few paragraphs relating to on going activities of some Mahaweli agencies which were strictly not relevant and to provide more information on MED activities which were more appropriate. Also received draft copy of Section 2 - Survey Results, prepared by TEAMS for comments.

4 December 92 : 9 am - 11 am

At TEAMS Office. Suggested certain improvements to be made in the text in the section on Survey Results prepared by TEAMS and the inclusion of a few additional paragraphs giving a summary of findings relating to ownership and financial transactions of enterprises. Also noted certain gaps and inconsistencies in the tabulated data which were brought to the notice of TEAMS consultants for necessary action.

9 December 92 : 9 am - 11 am

Received copy of first draft of Section 3 on the Sample Survey for comments. Read through the documents and noted down certain points for further clarification, particularly as regards the proposed sample design.

18 December 92 : 9 am - 11 pm and 19 December : 9 am - 1 pm

Received copy of draft final report sent for comments. read through the document and made note of several errors and omissions in the text as well as in tables of the census report, which needed correction. The section on Sample Survey also needed further clarification and revision.

22 December 92 : 2.30 pm - 4.30 pm

Meeting at MED office at which the draft Final Report was tabled for discussion and comments. The consultant suggested that certain improvements be made in the section on Survey Results by using graphs to depict important characteristics of Mahaweli enterprises. He also observed that no reference had been made in the text in regard to ownership of enterprises for which several tables have been compiled. A few additional comments on financial transactions of enterprises such as sales and sources of finance seemed warranted in spite of the limitations of the data. The consultant also suggested possible improvements to the proposed survey design with a view to delineating more clearly the various procedures to be followed in selecting the sample. The consultant made available to TEAMS in written form the comments and observations made by him in the proposed sample design for their use in revising the section on sample survey methodology for the final report.

28, 29, 30, December 92 : 8 am - 12 noon and
31 December : 10 am - 12 noon

Preparation of Consultant's report.

2. DETAILED DESCRIPTION OF QUALITY CONTROL MEASURES
RECOMMENDED TO TEAMS

i. Census Organization

The original proposals submitted by TEAMS for the organization and conduct of the census of enterprises had to be reviewed taking into consideration the more specific requirements of the MED authorities and the need to conform as far as possible to the standard international procedures and practices followed in most countries in undertaking censuses of this nature.

ii. Work Plan for the Census

The consultant advised both MED authorities and TEAMS of the need to extend the time limit for the completion of the Census programme from the original 12 weeks to at least 14 weeks so as to ensure that the different stages of the census operation were carried through successfully and the end product would match up to the required standard. The work programme was revised accordingly and this enabled TEAMS to conduct the Census operations more efficiently than would otherwise have been the case.

iii. Definition and Listing of Enterprises

One of the many problems faced at the initial stages was the lack of clear-cut definitions of the types of enterprises to be covered at the census. While, for the most part, enterprises engaged in so called traditional agriculture were to be excluded, there was no clear understanding as to what constituted traditional agriculture in terms of crops, size of farm etc. Likewise, the inclusion of livestock and poultry farming within the scope of the Census was likely to pose many problems at the field level unless precise instructions were to be given in this regard. Even in the case of non-agricultural enterprises, there was a need to lay down certain guidelines for the choice of enterprises in view of the fact that there were many self employed persons engaged in such activities whose earnings were so small and irregular that they could be conveniently ignored for the purpose of the Census. At the request of the Consultant it was decided to establish certain unambiguous criteria for determining the types of enterprises to be covered at the census.

The Consultant had certain reservations with regard to suitability of the focussed enumeration scheme for the listing of enterprises in the rural areas suggested by TEAMS in their technical proposals. These suspicions were justified during the field test done in System G, when the difficulty of preparing a reliable frame of enterprises on these lines was realized. The enumeration strategy in the rural areas was therefore modified to cover a much higher percentage of households (ranging from 80-100%) in order to compile a list of eligible enterprises. This procedure proved to be a much more effective method of enumeration than the earlier scheme; it also had the added advantage of providing a sampling frame of households for any future sample survey.

iv. Preparation of the Census Questionnaire

The original questionnaire included in TEAMS Technical Proposals was found to be not so well designed to collect the type of information required at the Census and therefore needed to be modified. The consultant assisted TEAMS in drawing up a fresh questionnaire that not only provided for the collection of basic data required by the MED authorities, but also supplementary data especially as regards financial transactions that would prove useful in determining future policy. Furthermore, for key items such as industrial sector and employment, it was ensured that classifications used in the questionnaire conformed to UN specifications.

At the request of the Consultant, TEAMS prepared a set of instructions for field investigators with a view to assisting them in filling up the questionnaire.

Before finalising the questionnaire, the Consultant visited system G along with TEAMS Consultant in order to test check the questionnaire in the field. This proved to be very useful not only in improving the questionnaire design, but also in revising the instructions to investigators taking account of the actual situation obtaining in the field.

v. Training Classes for Field Investigators

The Consultant participated in at least two field training classes in each of the 6 systems, other than Kotmale, in order to ensure that the adequate instructions were provided and questions raised were suitably dealt with by TEAMS consultants. It was encouraging to note that the TEAMS leader, the Consultant in-charge of field operations as well as the Chief Field Supervisor were present at each and every training class in the different systems. By this means, the consistency and uniformity in the procedure as well as in the comprehensiveness and quality of the instructions provided was ensured.

vi. Field Operations

The field operations were originally scheduled to be completed over a period of 8 weeks; but due to the extensiveness of the area to be covered and the unforeseen delays in the deployment of supervisors and investigators in time to the various blocks in the different systems and many other difficulties encountered in the field, it took a few more weeks before the field investigations could be completed. The consultant monitored the progress of work and arranged with TEAMS for the despatch of more supervising staff to the field in order to ensure the more orderly and speedy execution of field work without in any way impairing the quality of the work output. The consultant also advised TEAMS to ensure the fullest possible coverage of enterprises, particularly in the townships, using information from all other available sources; as a result many enterprises which had unaccountably been omitted in the original listing were included at the time of the Census.

vii. Editing, Coding and Data Processing

One of the major problems faced during the initial stages in the editing and coding of completed schedules was the relatively high percentage of errors and omissions and inconsistencies in the data in the completed schedules. There were also many instances

of schedules completed in respect of enterprises which seemingly did not qualify for inclusion at the census. The consultant's advice was sought by TEAMS in resolving these problems. As far as possible further guidelines were provided to those engaged in the editing process so that most of the corrections needed could be attended to in office; in all other instances the schedules were referred back to the field supervisors for necessary action. In order to forestall any further difficulties in the editing process, the consultant advised TEAMS to send further instructions to the field supervisors to exercise more care in scrutinising the completed schedules, before they are despatched to the Head Office.

As a further step towards ensuring the quality of the data, additional computer checks were imposed at the data entry stage so as to minimise errors and omissions and inconsistencies in the data processed.

viii. Tabulation of Data

At the tabulation stage, the Consultant advised and assisted TEAMS in making the maximum use of the data gathered during the census for the purpose. Since the original tables listed by TEAMS in their Technical proposals did not prove adequate enough for the purpose, the consultant provided a more comprehensive list of tables with their table formats which could be utilized in presenting the data both for the Mahaweli region as a whole as well as for the individual systems. This tabulation scheme was accepted by TEAMS more or less in the same form in preparing the final tables for the census report.

While scrutinizing the computerised tabulated data at the initial stages, the consultant detected many errors and omissions as well as inconsistencies in the data appearing in several draft tables, which were brought to the notice of TEAMS for correction. The consultant advocated the use of further computer checks at the data processing stage in minimising such deficiencies in the tabulated data.

ix. Preparation of Census Report

A draft format of the census report giving in outline the proposed Sections, chapters, sub-heads etc. was made available to the consultant for comments by TEAMS. The consultant recommended several modifications to be made in the lay-out in order to ensure that the format conformed more closely to the standard patterns adopted in census reporting. These recommendations were taken into consideration by TEAMS, when preparing the draft final report.

The consultant had the opportunity of going through the draft census report prepared by TEAMS and sent to him section by section for comments. While Section I on "Census" needed only a few amendments, there were several corrections and improvements to be made in Section 2 on "Summary Results", both in the text as well as in the tables. Section 3 on "Sample Survey Methodology" in its original draft form also needed further clarification and revision particularly in regard to the proposed Sample Survey design.

When the final draft report was presented for discussion by TEAMS at the meeting with MED Consultants, these observations and comments were brought to their notice. More specifically the Consultant stressed the need for including a few graphs to depict the

more important characteristics of Mahaweli enterprises derived from the tabulated data. Furthermore it was observed that in the analysis of census results, no reference had been made to several tables relating to years of existence of enterprises. It was also noted that the comments on gross sales and investment of enterprises were only summarily dealt with and could be developed further. In checking the census tables the consultant detected a few errors and omissions and inconsistencies in the tabulated data. These were brought to the notice of TEAMS consultants for correction when preparing the final report.

It was, however, in regard to Section 3 on "Sample Survey Methodology" as proposed that the consultant had certain reservations and which in his opinion, needed further clarification and revision. Detailed observations in this regard and the lines on which the proposed sample design could be improved were therefore made available to TEAMS at their request for use in preparing the final report.

3.

CERTIFICATION

The consultant certifies that

- (a) The census of Mahaweli enterprises was conducted by TEAMS according to prescribed specifications following the standard practices and procedures recommended by UN for such purposes, suitably adapted to cater to local needs and circumstances.
- (b) The post census sample survey plan for the purpose of monitoring key indicators periodically has been drawn up using accepted sampling techniques and procedures taking into consideration the framework of enterprises and its characteristics, as derived from the census.

COMMENTS ON THE FINAL REPORT

The consultant was associated with TEAMS in the census project from its very inception up to the preparation of the final report. He has no hesitation in commending the TEAMS Consultants for the successful conduct of Census operations culminating in the production of an excellent report.

It is recognised that in a census operation of this magnitude there are bound to be unforeseen problems, both in the field as well as headquarters, which are likely to cause delays in completing the project on time. TEAMS had to work to a tight time-schedule, which even a more experienced organization would have found difficult to adhere to given the available resources and the magnitude of the task. However, it is to their credit that they were able to produce a well documented, informative and technically sound report with the minimum delay, which more than fully meets the basic requirements of the MED authorities.