Technical Cooperation Program: Bangladesh
Strengthening capacity to generate quality information
on forest resources in Bangladesh
(April 2004 - October 2005)

I.   BACKGROUND AND JUSTIFICATION

Some two and a half million hectares or about 17.5 percent of Bangladesh's total land area is classified as forestland, of which about 10.5 percent is under the control of Forest Department (FD). As per Forestry Master Plan only about 6 percent of Bangladesh's total area is under reasonable quality of forest vegetation on state forest land, excluding parks and sanctuaries but including the better quality natural forest of medium to good density plus bamboo areas and plantations. The government owned forest area is about two and a quarter million hectares; the rest consists of privately owned village forests and homestead plantations spread throughout the country. The later is of utmost importance in supplying the major part of bamboo, fuel wood and timber used by the rural population. The government owned forest comprises 1.53 million hectares of natural forests and plantations under the control of the FD, and 0.73 million hectares of unclassified state forest administered by the Ministry of Land through district administration.

Sustainable management of forest resources is inevitably dependant on the monitoring of not only tree resources but also of physical, biological and social factors that have roles to play, directly or indirectly on the functions of the resource as a whole. Sustainable management options can neither be formulated nor can be revised unless dependable information or data are made available. Thus, generation of quality data is of utmost importance. Information on supply and demand situation, end use oriented forestry, biodiversity need, people's demand, etc. are inevitable to build quality information base and to formulate an effective and sustainable forest management system. Planning is the basis for the effective management. Good and quality information base can develop a good planning module.

Village forests are very important in the economic life of the country, supplying the bulk of the wood and other forest products in the market. Lack of updated and reliable data of village stock and flow as well as household consumption is a serious constraint in formulating any objective plan for development. Social forestry, an appealing land-use strategy, has been in practice in Bangladesh for more than 20 years. Different categories of marginal lands outside forests, like roadsides, railway lands, embankments, feeder roads, etc were planted, and block fuelwood plantations and village grooves were established, all on a participatory basis. Again these forest areas are not homogenous in terms of species composition and density. However, information generation and necessary study are still limited for trees outside forests. There is urgent need to generate information in the field of social forestry, which will create opportunity in formulating more responsive policies and in designing and developing appropriate plans, activities, projects and related programmes.

In many situations it is observed that information generated within the country can hardly be used by the international or global organizations. It is due to lack of compatibility in the categorization of the parameters and scale. Information generated at the lowest or micro level should have the flexibility to be compiled at macro level. The information base should be compatible to feed the international organizations.

The growing importance of forestry demands quick appraisal of forest status, socio-economic condition and factors responsible for the environmental degradation. In an over populated country like Bangladesh forestry scenario is dynamic i.e. ever changing. Updating and quick dissemination of information is almost impossible in a traditional tabular data base format. To coupe up with the situation a modern automated information processing system supplemented with the Geographic Information System (GIS) will be helpful. A quality information system can enhance forestry planning and operations by inserting social and environmental aspects into the decision-making process.

In 1998 a management inventory was carried out for the Sundarbans, Chittagong, Cox's Bazar & Sylhet Forest Divisions and four Coastal Afforestation Divisions namely Chittagong, Noakhali, Bhola and Patuakhali under the technical assistance programme of the World Bank under the "Forest Resource Management Project". A forest inventory was carried out in all forest divisions having Sal (*Shorea robusta*) forests, i.e. Dhaka, Tangail, Mymensingh, Dinajpur, Rangpur and Rajshahi during the period from November 1999 to May 2000. The mapping work is ongoing under GIS section of the Forest Department. The village forest inventory was carried out in 1980-81 under FAO/UNDP Project BGD/78/020 "Village Forest Inventory". A survey was conducted during preparation of the Forestry Master Plan during 1991-93 to cross-check the previous results, reassess and update the availability of villages stocks, rural consumption of forest products, and public attitudes towards tree plantation and environment preservation. Currently there is no up-to-date data on the forest resources in the Chittagong Hill Tracts. Under Technical Assistance Component of the World Bank Assisted "Forest Resources Management Project" a manual for Chittagong Hill Tracts Inventory Procedures was prepared in June 2001. The manual outlined the inventory policy, objectives, management organization & structure required for implementing the forest inventory and identified positions and responsibilities.

Bangladesh Forest Department has adopted a computer based Resource Information Management System (RIMS). To keep pace with present modernization in the forest management system, Bangladesh Forest Department has also introduced GIS and Management Information System (MIS). A management information system named Planning, Budgeting and Monitoring System (PBMS) has been developed to computerize information relating to forest administration, management and development, preparation of budget and plan of activities. All the forest inventory data that were collected in the field and entered into the forest inventory database are also stored in the computer and are available for future reference and use.

Generally, forest resource inventories in this country are oriented towards the preparation of management plans. National forest and tree resource inventory for the whole of Bangladesh has not yet been done. A total inventory of the resource is hardly accomplished through the existing system and methodology applied in the forest inventory. The development and establishment of suitable national forest and tree resources assessment methodology and data management system for the continuous updating of the data is of top priority since they have never been done in Bangladesh in the past. Thus, timely and scientifically valid forest and tree assessment is required to have accurate information on resource changes and trends and their significance to long-term human development. Monitoring programmes and their requisite data bases must be developed, implemented and maintained. The gathered information when aggregated should also meet the needs of international processes such as Forest Resources Assessment (FRA) of the Food and Agriculture Organization (FAO) for the global assessment of the forest resources, the ecosystems and the depending local populations.

The Government of Bangladesh (GoB) deployed considerable efforts in generating and managing information on small scale forest areas but lacked the reliable information at national scale and the capacity to plan and implement projects for its production. It is thus the real gap in the national efforts that requires external inputs such as from FAO through a TCP project.

It is expected that the project will revitalize the forestry activities at both national and regional levels and will assure technology transfer to the national inventory team in the areas of remote sensing, mapping, forest inventory and forest information management. It will improve the baseline information on the forestry resources, which will guide the resources management on sustainable basis.

II. OBJECTIVES OF THE ASSISTANCE

The project aims at promoting sustainable management of forests and trees resources in Bangladesh founded on policy that integrates and balance relevant environmental and social aspects of forestry. Sustainable management aims at enhancing the social, economic and environmental functions of forests and trees on the basis of better knowledge and at improving the contribution of these resources in the national economy. The project will contribute to achieve the following objectives:

- assist the FD under the Ministry of Environment and Forest (MoEF) in developing and strengthening its capacity to collect, compile, process and disseminate reliable and up-to-date information on forestry to policy makers;

- assist the FD to plan national forest and tree resources assessment for long-term monitoring of resources and carry out assessment, from selected sample sites in representative land cover land use units across the country, develop up-to-date and sound baseline information. The national assessment will cover a large array of biophysical and socio-economic variables with emphasis on the management and use of resources;

- assist the FD in evaluating the findings, defining the sector priorities and outlining the national forest programme;

- advise and assist the government to establish a long-term monitoring of the national forest resources, take the necessary measures to maintain and support the National Forest Assessment Unit (NFAU), enable it to carry out continuous resource assessments in the future and convert the project into a permanent programme for long-term monitoring and support to decision making.

III. PROJECT OUTPUTS

- The capacity of the FD under MoEF to plan and implement forest and tree inventories, monitor the resources, manage the related information and contribute to advance sustainable forest management by enabling an increased use of forestry knowledge in national forest policy development and implementation enhanced and strengthened.

- A National Forest Assessment Unit (NFAU) set up and properly manned with a core of national personnel adequately trained in forest inventory techniques and project management through on-the-job training, workshops and study tours.

- A national database on the forest and tree resources established and integrated in the existing data management and information management systems based on the GIS and the

results disseminated to users. The existing systems will be evaluated and reviewed and the needed improvements will be introduced.

- Priorities of the forestry sector including forestry action plan, forestry development strategies, specific projects for forest and tree resources development and/or conservation, etc. defined as follow on actions.

- Forest and tree cover map produced at appropriate scale on the basis of harmonized and standardized vegetation classification system according to national and international requirements. The satellite LANDSAT TM data will be purchased.

- National forest and tree assessment methodology defined on the basis of the approach developed by the FRA and taking into account the information needs for national use and international reporting.

- National forest and tree assessment carried out with focus on the multiple functions (environmental, social and economic) of the forest and tree resources, their management, uses and users.

- Monitoring of the forest and tree resources set up and national register of permanent sample plots for future surveys established.

IV. WORK PLAN

The project will be implemented in three phases during which the following activities will be undertaken (see Annex 11).

Phase 1

Includes all the preliminary arrangements and preparatory work of the project, namely training of the national inventory supervisors and field crews, adjusting the forest and tree assessment methodology, classification system and variables according to national requirements, acquisition of equipment and satellite images, recruitment of the national and international personnel.

It is a major capacity building activity for the FD. The national assessment team will be familiarized with the techniques and methods of national forest assessments, the forest and land use classification systems, and identification of forest and tree attributes. The FRA approach of national forest assessment and long-term resources monitoring will be the base of discussions. The sampling design and data collection model in the approach will be reviewed and adjusted when necessary. The land use classification system harmonized by FRA for national forest inventories and to facilitate national reporting to international processes will be analysed and improved in view of the national and international information requirements. The forest type/land use map will be produced based on the harmonized classification system. The list of biophysical and management/use variables thoroughly analysed and adjusted to include all parameters of national interest. The environmental, social and economic functions of the forests and trees will be properly described by the national forest assessment. The project outputs will include an assessment of the products and services provided by forests and trees, of the role of these in food security and the responsibility of the stakeholders (man, woman, children, entrepreneurs, NGOs, etc.) in resources management and exploitation. As part of training, two officers from the FD associated with the project will participate in a study tour to a country where a successful national forest assessment for long-term monitoring purpose is

running. Among these countries, the following may be considered: Philippines, Lebanon, Cameroon and Guatemala.

This phase will also be dedicated to setting up the NFAU as part of the FD and mapping. The FD will deploy the necessary technical staff to implement the project by carrying out office and field works.

The training will be secured through workshops, courses and a study tour. Four workshops will be organized. Thirty professionals/representatives from Ministry of Environment and Forest, Forest Department, Bangladesh Forest Research Institute (BFRI), Space Research and Remote Sensing Organization (SPARRSO), Institute of Forestry and Environmental Science, Chittagong University (IFESCU), Forestry and Wood Technology Discipline, Khulna University, Forestry Department of Shahjalal University of Science and Technology, Sylhet, Bangladesh Bureau of Statistics (BBS), Survey of Bangladesh, Bangladesh Chemical Industries Corporation (BCIC), Export Promotion Bureau (EPB) and other related organizations will participate in the workshops. These will lead to a consensus on the monitoring approach of the forest and tree resources, the classification system and the national list of attributes to be assessed.

The project will organize and run introductory and practical courses for both the national assessment team from the FD and the thirty field crew members (ten field teams each comprising three people) from the Regional Offices.

For the mapping component in the project, the satellite LANDSAT TM data will be procured and used as input to the national forest and tree assessment. The satellite scenes will be interpreted to create polygons of the forest types and other land use classes according to the harmonized classification that will be prepared for the purpose taking into consideration the FAO classification used by the FRA 2000 for global reporting and the national requirements of resources management. The 1:50 000 scale topographic maps will be used as base for the construction of the forest type and land use maps. The maps will constitute a solid basis for cost-effective monitoring of the changes within the forest types and other land use classes. It will be used for assessment of the multiple benefits from forests and trees.

Phase 2

Activities under this phase include materialization of the permanent sample plots in their field location, data collection from measurements, observations and interviews with local people and target groups and data entry/storage.

In this project, fieldwork is a crucial activity. The planned outputs will depend largely on it. Permanent sample plots will be established for long-term monitoring of forest and tree resources all over the country and on all land use classes. GPS is a key instrument in locating plots with the help of latitude/longitude coordinates defined in advance on the topographic maps. The starting point of each plot will be marked with a metal pole driven in the ground. Reference points around the starting points of the plot will be identified, for which distance to and compass reading from the starting point of the plot will be taken and recorded to facilitate relocating plots in future surveys. Photographs will be taken as support documents for future plot location.

Measurements of forest and tree characteristics will be done in all land use classes (forest and non-forest lands). Observations of vegetation structure, health and spatial arrangements, and human activities will be recorded. Variables will be defined for this purpose during a workshop in the first phase of the project. Interviews of key informants from the local population, NGOs, and entrepreneurs, etc. will be conducted in every sample site to identify

major users of the resources (men, women, children and other groups), the products and services provided by the forest and tress, the way these are managed and used.

On-the-job training will be provided throughout project implementation on planning assessment, mapping, survey, database construction, data processing/analysis and information management. The field crews will be trained adequately to carry out future surveys and maintain the established network of sample plots. The national assessment team from the FD will also be trained in organization and supervision of the fieldwork.

The forest and tree database will be developed and integrated into the existing information system, on which the national personnel in charge will be trained and the data collected by the field crews will be progressively entered and processed to get desired output.

For the purpose of field survey which aims at the national assessment the tree and forest resources, the approach developed by FRA for national forest assessment and country capacity building will be used and adjusted to the national conditions and requirements. This includes statistical design, list of variables, and classification of forest types and land use classes. The sampling intensity and details of field survey methodology will be redefined by the international forest assessment consultant in collaboration with the TCDC (Technical Cooperation among Developing Countries) forest assessment expert and in consultation with the NPD and other FD officers under the technical guidance of the backstopping officer. The assessment methodology will be designed to form the basis of a continuous forest assessment in the country.

Data will be collected through fieldwork from the sample sites, including measurement/observation of biophysical properties, as well as interviews with local stakeholders as to the uses and management of the forest/trees. Variables to be collected are to be defined by national interests and requirements. FAO has selected a base set of variables, representing national and international information requirements. Starting from these, national variables can be specified to refine the data collection within important fields and to include variables related to particular forest products. To ensure comparable data sets between countries and compatible information with the global requirements, it is important that the final list of the national forest and tree variables is complete and covers the economic, social and environmental functions of the resources. It must follow the same structure and definition used the list of variables proposed by FRA.

Information generated from the plots by field crews as well as aggregated findings will be made public. The project will assist the GoB in organizing and dissemination of information.

Phase 3
Includes the development of the database with maps and field data, training of the national staff in charge of the system, data processing and analysis, reporting of project findings. A national workshop will be organized to review the project findings and recommend on follow up actions including formulation of the national forestry action plan, review and adjustment of sectoral policy, identification of specific inventories and other conservation/development activities.

The project will produce considerable amount of data at national level. A functional forest and trees information system will be established to structure and manage the collected inventory data, store it and process it to generate the needed information. The field data will be geo-referenced for integration and spatial representation of findings. The existing data and information systems will be used for this task.

The base for the information system will be a structured database, which will include various levels of internal relations. The system will permit storage of data from sequential surveys in order to detect and estimate changes and establish trends.

V.   CAPACITY BUILDING

The project will use international and national experts/consultants to achieve the project objectives. These experts/consultants will contribute to national capacity building, mainly through on-the-job training. Considering the highly specialized activities of the project including design and implementation of an integrated inventory and assessment of forest and tree resources, an international expert will be seconded to the project for a short period (two months) to provide a series of group training courses to the project staff. He will conduct jointly with the national consultants a series of workshops that will assure a wide involvement of national institutions in defining information needs and options for efficient implementation of the project.

The services of a TCDC expert will be required for a period that covers part of fieldwork activities, database construction, data entry/storage and data processing/analysis. The expert will train the field crew members, ensure harmonization of data collection among the crews and provide technical guidance to the national assessment team in measurements of forest and tree attributes, observations and interviews with different stakeholders and train and supervise data processing and analysis.

One study tour will be organized for two FD officers associated with the project to a country with on-going integrated national forest assessment project. FAO is currently supporting national forest and tree resources inventories in Asia (Philippines, Lebanon), Africa (Cameroon) and Central America (Guatemala). The study tour will be organized to the country with the most successful project in terms of capacity building, organization of the field survey, timely implementation of project activities, forest and tree information system, etc.
The involvement of national consultants along with the international consultants/experts will contribute to consolidating the knowledge of forest inventory and assessment.

Terms of Reference

International Forest Assessment and Mapping Consultant

Under the direct supervision of the FAOR and the technical supervision of the Chief, FORM/Forest Resources Assessment Programme, in collaboration with the TCDC expert, the national authorities, national forest assessment consultant and other national staff, the consultant will provide the technical assistance and support to the Forest Department in training of the national personnel, planning and implementing the national forest assessment and setting up the information system. The main tasks of the consultant will be:

- to prepare, in collaboration with the forest assessment consultant, a training programme for the national personnel involved in the project and assist the DF in its implementation;

- to provide training to the national personnel including the team of supervisors through workshops and courses;

- to work with the national team from the DF to review and adjust when necessary the assessment methodology, vegetation classification and biophysical and socio-economic variables;

- to assist in supervising interpretation of satellite scenes using the vegetation classification prepared with the national staff and the production of the map;

- in collaboration with the national consultant prepare a plan of project activities with inputs form the project and the Government;

- to assist in data analysis, reporting of findings and outline of follow up plan of action.

Duration: three person months in three missions (to take place in the beginning of the first phase, at the start of the fieldwork and towards the end of project).

Duty station: Dhaka.

Qualifications: the consultant should have a strong background in remote sensing, forest assessment design and planning. The consultant must be competent in forest information system development and information management and have confirmed experience in capacity building and project implementation. S/he should have confirmed familiarity with the requirements of global forest resources assessments and other international processes to ensure harmonization of the information needs at the national and international level. Fluency in English is required.

Terms of Reference

TCDC Forest Assessment Consultant

Under the direct supervision of the FAOR and the technical supervision of the Chief, FORM/Forest Resources Assessment Programme, in collaboration with the international consultant, the national forest assessment consultant, national authorities and other national staff, the consultant will provide the technical assistance and support to the Forest Department in training of the national personnel, planning and implementing the national forest assessment and setting up the information system. The main tasks of the consultant will be to:

- work in close collaboration with the national personnel and international expert from FRA and provide inputs for the elaboration of training programme to be given to the national personnel involved in the project and assist the FD in implementing it;
- participate in implementing the training programme for the national personnel including the team of supervisors, the field crews and database personnel through the planned workshops and courses;
- assist the FD in purchasing, installing and using the equipment and supplies planned for the project;
- in close collaboration with the national consultant, prepare a plan of the project activities and identify timely inputs form the project and the Government;
- provide supervision of the field crews during the beginning of the survey and provide technical guidance as to homogenize data collection and best interpretation of variables and definitions;
- assist in organizing and collecting outputs of field crews and filing them;
- assist in developing the national forest database, entering/storing the field data, preparing functions for data processing and initiate data processing;
- assist in data analysis and reporting of findings.

Duration: seven person months in two missions.

Duty station: Dhaka.

Qualifications: the consultant should have a Bachelor/Masters degree in forestry/natural sciences. Ph.D. holders will be preferred. The consultant should have a background in national forest assessment design, planning and competence in forest information system management and have confirmed experience in capacity building and project implementation. Fluency in English is required.

Terms of Reference

National Forest Assessment Consultant

Under the direct supervision of the FAOR and the technical supervision of the Chief, FORM/Forest Resources Assessment Programme, in collaboration with the international consultants, national authorities and other national staff, the national consultant will assist the Forest Department in training the national personnel, planning and supervising the national forest assessment. The main tasks of the consultant will be to:

- work in close collaboration with the national personnel and international consultant and provide inputs for the elaboration of training programme to be given to the national personnel involved in the project and assist the FD in implementing it;
- participate in implementing the training programme for the national personnel including the team of supervisors, the field crews and database personnel through the planned workshops and courses;
- assist the FD in purchasing, installing and using the equipment and supplies planned for the project;
- in close collaboration with the international consultant experts, prepare a plan of the project activities and identify timely inputs form the project and the Government;
- in close collaboration with the national and international forest inventory consultant/expert, prepare a plan of the fieldwork activities and identify timely inputs form the project and the Government;
- provide supervision of the field crews during the survey and provide technical guidance as to homogenize data collection and best interpretation of variables and definitions and assist them for preliminary contacts with the regional forestry services, local authorities, land owners and other target groups for interview on accessibility, resources management, uses and users;
- provide the necessary logistical support to the field teams;
- assist in organizing field crews outputs and in filing them;
- in close collaboration with the TCDC expert, assist in developing the national forest database, entering/storing the field data, preparing functions for data processing and initiate data processing;
- assist in data analysis and reporting of findings.

Duration: 12 person months WAE.

Duty station: Dhaka.

Qualifications: the consult should have a Bachelor/Masters degree in forestry/natural sciences. Ph.D. holders will be preferred. The consultant should have a background in national forest assessment design, planning and competence in forest information system management and have experience in capacity building and project implementation. Fluency in English is required.

Terms of Reference

National Remote Sensing Consultant

Under the direct supervision of the FAOR and the technical supervision of the Chief, FORM/Forest Resources Assessment Programme, in collaboration with the international consultants, national authorities and other national staff, the national consultant will assist the Forest Department in training the national personnel, planning and implementing the national forest mapping component and setting up the information system. The main tasks of the consultant will be to:

- work in close collaboration with the international consultant and provide inputs for elaboration of the training programme for the national personnel involved in satellite imagery interpretation and mapping;
- participate in implementing the training programme in connection with the remote sensing component for the production of the forest map/land use map;
- work in close collaboration with the international consultant/expert and the national team from the FD to review and adjust, when necessary, the vegetation classification taking into account the national requirements and the FAO terminology, definitions and classification used in the global Forest Resources Assessment 2000;
- assist the FD in purchasing, installing and using the equipment and supplies planned for the project when applicable;
- in close collaboration with the international consultant/expert, prepare a work plan of the mapping activities and identify timely inputs form the project and the Government;
- supervise the interpretation of the satellite images by SPARRSO, ground checking of the interpretation results and finalization of the map;
- report on mapping results.

Duration: four person months WAE.

Duty station: Dhaka.

Qualifications: the consult should have at least Bachelor/Masters degree in forestry/natural sciences. Ph.D. holders will be preferred. The consultant should have a background in applied remote sensing to forestry and experience forest mapping using remote sensing techniques. Fluency in English is required.

Terms of Reference

National Forestry Information System Consultant

Under the direct supervision of the FAOR and the technical supervision of the Chief, FORM/Forest Resources Assessment Programme, in collaboration with the international consultants, national authorities and other national staff, the national consultant will assist the Forest Department in training the national personnel, planning and implementing the national forest assessment and setting up the information system. The main tasks of the consultant will be to:

- collect and review comprehensively all traditional forms, record keeping systems and relevant documents;
- examine the existing data base system, MIS and computer facilities within FD;
- review existing status of information on tree resources outside forests and suggest actions for generating up-to-date information;
- prepare inception report and submit to Forest Department and FAO for comments;
- in close collaboration the FRA expert and computer programming consultant, formulate preliminary database structure for Forest Department controlled forests and for tree resources outside forests and present it in a workshop for comments/opinions of all levels of stakeholders;
- finalize data base structure on the basis of discussions, pilot study, comments/opinions of all levels of stakeholders (FD, other relevant governmental and non-governmental organizations) and consultations with subject specialists/experts, aiming at generating quality information on tree resources;
- assist in data entry/storage and processing;
- prepare and submit final consultancy report.

Duration: eight person months WAE.

Duty station: Dhaka.

Qualifications: the consultant should have a Bachelor/Masters degree in forestry/information technology/natural sciences. Ph.D. holders will be preferred. The consultant should have at least ten years experience in institutional support and administrative management. The consultant should be conversant with the knowledge of forest assessment, forest statistics, GIS and remote sensing. Fluency in English is required.

Terms of Reference

National Computer Programming Specialist

Under the direct supervision of the FAOR and the technical supervision of the Chief, FORM/Forest Resources Assessment Programme, in collaboration with the international consultants, national authorities and other national staff, the national consultant will assist the Forest Department in training the national personnel involved in forest information system development and management. The main tasks of the consultant will be to:

- review and assess existing computer facilities of Forest Department in the headquarter as well as in the field;
- prepare and submit interim report on the basis of review findings;
- develop the computer programmes to automate the forestry information generation system to be formulated under the project;
- draw computer training programmes for different levels of personnel within FD, other governmental and non-governmental organizations and private organizations;
- prepare user manuals and handbooks;
- to carry out such other technical duties as required by the team leader to fulfill the objectives of information generation project;
- submit a final report incorporating recommendations for future programming requirements and training needs for Forest Department personnel and other stakeholders.

Duration: two person months WAE.

Duty station: Dhaka.

Qualifications and experiences: the consultant should have a degree in computer science or other subject related with system design and development. He/she should have five years working experience in the field of computer programming as an independent consultant or as an employee of reputed firm.

Terms of Reference

FAO supervisory technical services - FORM

Under the direct supervision of the FAOR and the technical supervision of the Chief, FORM/Forest Resources Assessment Programme and in collaboration with the national authorities, the backstopping officer from FORM will undertake three missions in support of the project as foreseen in the work plan. The backstopping officer from the FRA programme will also provide technical assistance and guidance on aspects of:

Mission 1 (ten working days):
- national forest and tree assessment methodology development including sampling design, classification system harmonization, and variables;
- forest type and land use mapping;
- training of the national personnel in the areas of mapping forest assessment and information management;
- supervise and interact with international staff on the local training courses for field crew members and national team of supervisors.

Mission 2 (ten working days):
- field survey for data collection on forest and tree resources;
- data processing, information system development and reporting;
- supervise and interact with international staff on the local training courses for database and information system development and operation;
- overall technical supervision of project implementation and delivery at the national level.

Mission 3 (ten working days):
- technical editing and clearance of project reports;
- overall technical supervision of project implementation and delivery at the national level;
- data processing, information system development and reporting;
- technical guidance in evaluating project findings, defining sector priorities and outlining national forest programme.

Terms of Reference

FAO supervisory technical services - RAPO

Under the direct supervision of the FAOR and the technical supervision of the Chief, FORM/Forest Resources Assessment Programme and in collaboration with the national authorities, the backstopping officer from RAPO will undertake two missions in support of the project as foreseen in the workp plan. He/she will also provide technical assistance and guidance on aspects of:

Mission 1 (five working days):
- project activity planning and government inputs for the different phases of the project;
- planning and running workshop on national forest assessment methodology;
- planning the workshops on: i) forest and tree information needs and the required set of biophysical, management/use variables; and ii) needs and requirements for strengthening the FD;
- interaction of international and local staff for implementation of work plans;
- creating synergies between project and regional processes such as the ITTO process for criteria and indicators, etc.

Mission 2 (five working days):
- final reporting of the project taking into account regional information requirements for sustainable forest management;
- planning and running workshop on project finding and outline of follow up programme;
- discuss with national authorities measures taken by Government for sustainability of project results namely the long-term monitoring of resources and dissemination and updating of information.