

Central Asian Countries Initiative for Land Management

Sustainable Land Management Information System (SLMIS)

Work Plan and Budget

I. RATIONALE

A. Background and Introduction

1. The CACILM Multicountry Partnership Framework Support Project (CMPF Support Project) will provide additional support to the implementation of CACILM and the respective national programmes. In particular, it will assist the five Central Asian Countries (CAC) Kazakhstan, Kyrgyz Republic, Tajikistan, Turkmenistan, and Uzbekistan in adopting an integrated approach to land use planning and management, taking into consideration current international efforts towards a harmonization of land data and information management. In this context CACILM intends to introduce the LADA¹ methodology, and indicators and will work with National Institutes and FAO on the design and development of a sustainable land management information system (SLMIS).

B. Impact and Outcomes

2. The development of the Sustainable Land Management Information System (SLMIS) will improve the current weaknesses in institutional capacity and the information base for assessing and monitoring land degradation in the five Central Asian countries. The SLMIS will establish a baseline for land degradation in the sub-region and will provide key indicators for monitoring. Relevant stakeholders will participate in a range of training activities to enable them to apply current information systems methodology for national and sub-national level assessment of land degradation. This multi-country program will ultimately enhance the countries' institutional capacity to assess and monitor land degradation and to understand adopt integrated land use planning and management systems for the successful implementation of their programmes in support of sustainable land management. The design and monitoring framework is provided in Table 1.

¹ Land Degradation Assessment in Drylands (LADA) is a 4-year project under GEF's OP1: *Arid and Semi-arid Zone Ecosystems*; OP12: *Integrated Ecosystem Management* and; OP15: *Sustainable Land Management*, implemented by the United Nations Environment Programme (UNEP) and executed by the Food and Agriculture Organization of the United Nations (FAO). LADA will develop tools and methods to assess and quantify the nature, extent, severity and impacts of land degradation on dryland ecosystems, watersheds and river basins, carbon storage and biological diversity at a range of spatial and temporal scales. It will also build the national, regional and international capacity to analyze, design, plan and implement interventions to mitigate land degradation and establish sustainable land use and management practices. Also, a contribution will be made to the Developmental Goals of UNCCD and UN multi-lateral agencies to improve people's livelihoods and economic well being.

Table 1. Design and Monitoring Framework

Design Summary	Performance Targets / Indicators	Reporting Mechanisms	Assumptions and Risks
<p>Impact Restoration, maintenance and enhancement of the productive functions of land in Central Asia leading to improved economic and social well-being of those who depend on these resources while preserving the environmental functions of these lands in the spirit of the UNCCD.</p>			
<p>Outcome Improved capacity of institutions in Central Asia to adopt integrated land-use planning and management</p>	<p>Integrated approach to land-use planning and management used in 100% of relevant public investment projects</p> <p>All evaluation and monitoring reports of relevant public investment project meet CACILM standards</p>	<p>CACILM and National Secretariat reporting</p> <p>SLMIS monitoring reports</p>	<p>Fundamental support exists and can be sustained at the central level for a multidisciplinary and cross-sectoral approach to dealing with land degradation</p>
<p>Outputs Sustainable Land Management Information System designed, developed and operated.</p>	<p>SLMIS functional in all CACs</p> <p>Land degradation baselines established</p> <p>SLMIS provide reports on national key land degradation indicators</p> <p>Multicountry SLMIS collating and analysing national M&E data</p>	<p>SLMIS monitoring reports</p> <p>Annual reports on implementation of SLMIS</p>	<p>Establishment and capacity building for national SLMIS will be completed in a timely manner</p>
<p>Activities</p> <ol style="list-style-type: none"> 1. SLMIS Institutional and Technical Needs Assessment, Agreements and Work plans 2. SLMIS Design 3. National SLMIS Capacity Building 4. National SLMIS Implementation 5. Integration of CACILM Projects data into SLMIS 6. Regional SLMIS Reporting and SLMIS Project Coordination 	<p>Milestones</p> <ol style="list-style-type: none"> 1. The SLMIS system is clarified with the National Coordination Councils; National IS Institutions are identified and Partnership Agreements signed as required to enable SLMIS implementation in each CAC. SLMIS Workplan approved by CACILM Steering Committee. 2. Detailed system design document is completed for each CAC for: land degradation data acquisition, data storage, data analysis and reporting; information assessment method; training and capacity building plan; implementation arrangements and detailed cost estimates completed for each CAC. The multicountry baseline established. 3. Training programs completed enabling the National SLMIS Institutions and selected CAC personnel to assess and report on land degradation indicators to the National Coordination Councils. 4. Baseline and initial reports on key land degradation and livelihood indicators are produced and presented to the National Coordinating Council by National Institutions. 5. CACS can provide reports on key land degradation indicators developed from the CACILM project areas. Multicountry SLMIS can collate and analyse national monitoring and evaluation data. 6. Management and reporting of SLMIS is in accordance with CACILM requirements. Regional SLMIS trends reported to CACILM Steering Committee. 		

II. COMPONENTS

3. The SLMIS will have six components:

- (i) *Needs Assessment*, which will conduct an institutional and technical needs assessment in each country and lead to recommendations for selection and development of national SLMIS implementing agencies (NSIA) in each country. In addition, a background paper on land degradation monitoring will be prepared to recommend a methodology to be used for initiation and guidance of this CACILM multicountry activity.
- (ii) *Systems Design*, which will prepare the overall systems designs for data acquisition, data storage, data analysis, and reporting component as appropriate for the Central Asian countries individually and collectively, and at regional level. The system design will guide system development and implementation. In addition, the socioeconomic and bio-physical resource base and land use system maps will be established during the system design phase for use in capacity building and national elaboration of the land degradation baseline;
- (iii) *National SLMIS Institution Capacity Building*, which will provide training and capacity building in land degradation assessment using current information systems methods and technology, including the LADA methodology;
- (iv) *National SLMIS Implementation*, which will see the formal establishment of the NSIA in each country; ongoing operations of the SLMIS systems, ongoing monitoring of land degradation indicators, and periodic reporting of results;
- (v) *Integration of GEF Projects Monitoring into the SLMIS*, which will see integration of the monitoring results into the SLMIS systems through collaboration on monitoring and assessment techniques and methodologies, sharing of data and information, and, reporting of monitoring results from GEF Projects of CACILM into the national SLMIS systems.; and
- (vi) *Multicountry SLMIS Reporting and SLMIS Coordination*, which will have the overall management of SLMIS component, coordination between national systems and multi-country reporting needs, and periodic reporting of progress and monitoring reports.

A. Component 1 - Needs Assessment

1. Description

4. **Institutional Needs Assessment.** The establishment of the SLMIS requires an assessment of the current status of the roles and responsibilities of the ministries, departments, institutes and centres of the governments of the central Asian Countries; of the sharing and use of information systems for monitoring and reporting land degradation between these organizations in each CAC; and of the technical assistance and training necessary for decision makers to utilize the outputs of a SLMIS in the CACs. The use of the SLMIS system will be clarified with the National Coordination Councils (NCC). Candidate national institutions will be

identified and one national institution recommended to be responsible for the implementation of SLMIS multicountry project in each Central Asian country.

5. **Technical Needs Assessment.** The establishment of the SLMIS requires an assessment of the information management experience and the existing information system platforms, data and equipment of the institutions involved in land management in the central Asian Countries, and of the technical assistance and training needs necessary for the development and operation of SLMIS by the national institutions of the CACS. This will also include a background paper on land degradation monitoring which will be prepared to recommend a capacity building approach and methodology to be used for sustainable land management monitoring and reporting in CACILM;

6. **Implementation Arrangements and Work plans.** The establishment of the SLMIS requires the development and execution of Agreements between the various parties involved in the development and implementation of the SLMIS. This will ensure that all parties clearly understand their roles, responsibilities and reporting requirements for project implementation at national and regional level. Letter of Agreements will be executed with CACs. A partnership Agreement will be signed between ADB and FAO. Detailed work plans will be prepared by FAO and CACILM Multicountry Secretariat (MSEC) and consultants for component implementation.

B. Component 2 - System Design

1. Description

7. This component will prepare the design of the SLMIS system at the multicountry and national levels. The design will encompass both the monitoring and data collection component and the information technology component. In addition work will begin to compile and collate existing land degradation information available at national and local levels. A detailed system design document will be prepared to guide system development. The system design must provide for data acquisition and collection, laboratory analysis, storage, quantitative analysis, and reporting on indicators for land degradation and sustainable land management.

8. **Team Formation.** It is anticipated that national experts, together with international information system management specialists will work together to ensure the usefulness of the system. An inception workshop will be held to enable domestic and international information system specialists to exchange knowledge on the latest developments and trends on information management. Countries also will benefit from sharing information on the work of different national institutions which have information systems relevant to land degradation.

9. **Monitoring and Data Collection Systems.** Activities under this task will include the overall design of systems for acquisition of economic, social, and environmental data and information, as well as procedures, protocols and guidelines for data acquisition including all necessary survey instruments, sampling methods, analytical methods, and reporting formats. This task will also include the design of systems for managing monitoring field teams in the collection and reporting of economic, social, and environmental data and information. This task will be undertaken as part of the capacity building activities under component 3.

10. **Information Technology Systems.** Activities under this task will involve the overall design and specifications of the equipment platform, computer databases and analytical programs, including geographic information systems, for storing and analyzing data and

information as well as for presenting results and generating reports on the results of the project monitoring. The design will also include the use of remotes sensing images.

11. **System Design Documentation.** The overall system design will include: (i) business modelling to establish uses for the information; (ii) choice of indicators; (iii) specification of data model; (iv) identification of software platform; (v) identification of the hardware platform; (vi) identify the system requirements: (vii) a deployment and testing plan and schedule; (ix) implementation arrangements; (x) staffing, training and capacity building plan; and (ix) detailed cost estimate. The SLMIS system for each CAC will have elements for data acquisition, data storage, data analysis and reporting. The overall system design will be approved by each country.

12. **Data Sharing.** The design will need to provide for the information and data sharing systems between (i) the national and multicountry systems, (ii) the systems of the GEF funded CACILM projects, and (iii) global systems including the LADA system.

13. **Compilation and collation of national land degradation information.** The NSIA will lead activities to compile and collate all information available at national level that relates to land degradation and land degradation assessment, this includes identifying main institutions in charge of relevant issues, studies, databases, mapping and information systems, situation analysis, needs assessment, etc.. The information will be agreed upon by the stakeholders/national institutions and incorporated into the final national information system. Under component 3, the compilation of land degradation information at national level will be supported by training in applications and methodologies of LADA and other systems as appropriate to the needs of the NSIAs.

14. **Relationship to the LADA project for an Integrated Information Systems.** To ensure that CACILM information systems are compatible with global land degradation assessment systems (including LADA) it will be necessary to design specific arrangements for data and information exchange. Specific activities will be undertaken to establish a land degradation information system where global, national and subnational information can be linked (for example, the LADA Virtual Centre could be a platform for interaction with national systems). The Central Asian countries could contribute to developing the functionality of this virtual system for circumstances of SLM data and information exchange in their country. Training on data and information exchange methods and systems will be provided to countries through the Capacity Building Component.

C. Component 3 - National SLMIS Capacity Building

1. Description

15. Under component 3, FAO will take the lead and provide a set of tools and methodologies for land degradation assessment that have been developed under the LADA project. The training would be carried out with one selected institution at national level and at a limited number of pilot sites (GEF projects) at local level. International partner institutions of FAO and/or single experts may assist in the provision of the training. A Letter of Agreement between FAO and the national counterpart institution would support the execution of the training, holding of workshops, provision of specified national inputs and follow-up in each country. The subcomponents and structure of this training is summarized in the following table:

	Inputs (conceptually)	Tools / Methods (by FAO)	Result
National level assessment	by FAO: <ul style="list-style-type: none"> • Maps and data from global level stratification (baseline) • NDVI analysis • Land Use System map • Analysis of global land cover change (GLCN) • data and information exchange 	Application of the LADA-WOCAT Questionnaire on land degradation and sustainable land management Other training, capacity building and learning-by-doing activities of FAO with NSIA	Baseline of land degradation (of the entire country) Geo-referenced, mapable database on land degradation
	by the country: <ul style="list-style-type: none"> • Maps and data available at national level • Expert knowledge 		
Local level assessment	by the country: <ul style="list-style-type: none"> • Baseline land degradation map (from national level assessment) • (Pre-selected) pilot sites with all relevant existing technical background data (GEF projects) • Aerial photographs and satellite images of the local area (if available) • Local knowledge base 	LADA Toolbox, including Visual Soil Assessment (VSA), surveys, sampling, transects, interviews, analyzing satellite images etc.	Reports and data sets on the status of the land, good and bad land management practices Ground-truthing of higher level results

16. A global stratification system, training manual, and GIS database will be available for use in the NSIA capacity building exercises and activities. Systems such as NDVI analysis and SOTER physiography will be produced for use by the FAO trainers and the participants from the CACILM countries.

17. The newly developed LADA-WOCAT questionnaire on land degradation and sustainable land management will be in a national mapping exercise and data sets will be enhanced and completed by each country. Population of the LADA-WOCAT online database by the Central Asian countries is to be determined.

18. The GLCN Network in FAO will give training, provide the software and assist with satellite image acquisition (if required) for the analysis of land cover change as part of the national level assessment. The analysis of land cover change should also feed into the baseline data of each country and be reviewed periodically.

19. The work at local level is to be guided by the LADA toolbox. This will be used to apply LADA assessment methods at the GEF funded project sites in each CAC.

20. **National Baselines.** National baselines for agreed land degradation indicators will be established. It is expected that this baseline will use satellite imagery as the starting point which

will be refined by possibly available national data sets and the application of the LADA national assessment. FAO will be responsible for recommending the specific tools and methodologies of for the provision of the national baselines. The Euroasia dataset of GIMMS contains the whole of Central Asia. Other global datasets such as SOTER can also be obtained to include all 5 countries. The GLADA² approach (piloted in North China and Kenya) may be applied. GIMMS dataset (1981-2003 AVHRR NDVI time series archive at 8km resolution) may be used to establish trends in biomass productivity. The latest MODIS vegetation index products (MOD13Q1), Land Cover Classification Products (MOD12Q1), and Gross Primary Productivity (MOD17A2) should be acquired and analysed. The baseline should reflect the extent and trend, and severity of land degradation and provide the basis for monitoring and further SLMIS applications development of the NSIAs.

21. The national baselines will be aggregated to provide the multicountry baseline for the five Central Asian countries.

D. Component 4 - National SLMIS Implementation

1. Description

22. **Institutional Arrangements.** The National Institutions assigned by the governments of the CAC will establish the necessary institutional arrangements, management structure, staffing, and provision of infrastructure necessary to locate, equip and operate a SLMIS system in accordance with the SLMIS Agreement and the SLMIS Design documentation (Component 2). The National Institution will undertake the work necessary to install and operate the information system, obtain and process the data required, and to report findings on land degradation trends and indicators to the National Coordination Council. Detailed work plans and budgets will be prepared.

23. **Ongoing Compilation of Land Degradation Information.** This task will begin during the design phase and continue throughout the operational phase. The NSIA will lead activities to compile and collate all information available at national level (inventory) that relates to land degradation and land degradation assessment, this includes identifying main institutions in charge of relevant issues, studies, databases, mapping and information systems, situation analysis, needs assessment, etc.

24. **Monitoring and Assessment.** Specific data collection programs will be initiated to collect data on land degradation indicators, including data and information from the GEF funded CACILM projects in each CAC. Data will be collected following the protocols and guidelines developed under component 2, systems design, and the training provided under component 3.

25. **Ongoing Population of the Databases.** Data collected from the field, gathered from other CACILM subprojects, and incorporated in the system databases.

26. **Operation of the Information System.** Once the sustainable land management information system is fully operational in each country, there will be:

- (i) ongoing compilation of land management/degradation information, specifically to input national and GEF Project SLM data into SLMIS system.

² GLADA – Global Assessment of Land Degradation and Improvement, is a newly initiated component within the GEF-UNEP-FAO program of Land Degradation Assessment in Drylands (LADA).

- (ii) ongoing annual reporting on the SLM indicators to NCC and CACILM Steering Committee

27. **Reporting.** Annual reports on key land degradation indicators will be produced. Reporting will occur at three levels:

- (i) national to the National Coordinating Council
- (ii) GEF project areas to the CACILM Steering Committee
- (iii) global (as in individual country agreements to the LADA project)

E. Component 5 – Integration of GEF Projects Monitoring into SLMIS

1. Description

28. This component is to be implemented by the NSIA as a part of the operation of the SLMIS. The NSIA, assisted by the international SLMIS consultants, and in collaboration and cooperation with the GEF Funded CACILM Projects, will integrate data from within the areas of these projects. Arrangements for the sharing of data and information of the GEF Funded CACILM projects will be facilitated when necessary by agreements between the project and the SLMIS component. Availability and usage of the data sets and information from the GEF funded projects will be included in the reporting of the Multicountry Secretariat to the CACILM Steering Committee.

F. Component 6 Multicountry SLMIS Reporting and SLMIS Project Coordination

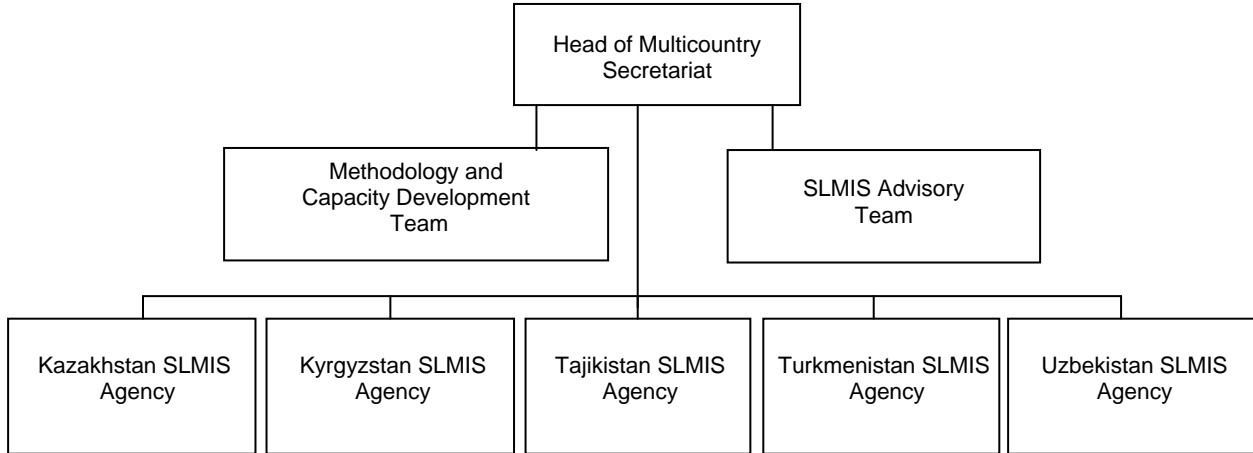
1. Description

29. The National Institutions, SLMIS consultants, and Multicountry Secretariat will report on the implementation of their SLMIS Workplan Components in accordance with their Letter of Agreement, Partnership Agreement, Work plans or Terms of Reference. The Multicountry Secretariat will provide reports to the CACILM Steering Committee consolidating the findings of the national SLMIS reporting. Under this component, the MSEC will coordinate the signing of letters of agreement, work planning and approval, progress reporting.

30. MSEC will report on the regional land degradation baseline and regional land degradation trends to CACILM Steering Committee.

III. IMPLEMENTATION ARRANGEMENTS

31. This SLMIS will be implemented under the overall direction of all Head of the Multicountry Secretariat.



32. A national SLMIS implementing agency will be created in each of the five countries. FAO will be contracted to provide the methodology and capacity development team. International and national consultants will be contracted as individuals for the SLMIS advisory team. Detailed terms for reference for implementing agencies, the international service provider, and consultants are provided in appendix 1.

33. The proposed activities will be implemented over 20 month period beginning in 1 November 2007. The proposed project activities and schedule are summarized in appendix 2.

IV. COST ESTIMATE

34. The estimated cost for the SLMIS component is \$1,550,000 including \$ 1,400,000 of funds administered by ADB and 150,000 contribution of FAO. Costs by component are provided in Table 1 and by expenditure in Table 2. Detailed cost estimate and financing plan is provided in Appendix 3.

Table 2. Estimated Cost by Component (US\$)

Component	Cost
Component 1: Needs Assessment	35,000
Component 2: SLMIS Design	135,000
Component 3: National SLMIS Capacity Building	600,000
Component 4; National SLMIS Implementation	525,000
Component 5: Integration of GEF Projects Monitoring into SLMIS	75,000
Component 6: Multicountry SLMIS Reporting and SLMIS Project Coordination	180,000
Total	1,550,000

Table 3. Estimated Cost by Expenditure Category (US\$)

Item	Total
A. Asian Development Bank Financing	
1 Consultants	
a. Remuneration	
i. International Consultants	110,000
ii. Domestic Consultants	40,000
2 International Travel and Per Diem	35,000
3 Training Seminars and Conferences	30,000
4 National Agreements	475,000
5 FAO Agreement	500,000
6 Local Transportation	
7 Data collection studies and surveys	
8 Equipment	145,000
9 Publication, reports, communication	10,000
10 Contingencies	55,000
Subtotal A	1,400,000
B. FAO Financing	
FAO Lead Technical Unit Personnel	
1 Personnel	50,000
2 Ongoing LADA activities	50,000
3 Workshop Support	50,000
Subtotal B	150,000
TOTAL	1,550,000

Detailed Terms of Reference for Implementing Agencies

35. A national SLMIS implementing agency will be created in each of the five countries. An international service provider will be contracted to provide the methodology and capacity development team. International and national consultants will be contracted as individuals for the SLMIS advisory team. Detailed terms for reference for implementing agencies, the international service provider, and consultants are provided.

A. SLMIS Advisory Team

36. The SLMIS Advisory team will consist of international SLMIS advisor and national SLMIS specialist. Both the international SLMIS advisor and the national SLMIS specialist will report to the head of Multicountry Secretariat.

1. International SLMIS Advisor

37. The international SLMIS advisor will:

- (i) Assist with the needs assessment;
- (ii) Lead the SLMIS design team;
- (iii) Design the information technology component of the SLMIS;
- (iv) Design the monitoring and data collection component of the SLMIS system
- (v) Design the data sharing systems;
- (vi) Prepare the draft and final systems design document;
- (vii) Provide ongoing advice and support to National SLMIS implementing agencies;
- (viii) Coordinate production of annual multi-country SLMIS reporting;
- (ix) Prepare progress reports; and
- (x) Provide assistance to the Head of CACILM Secretariat in design and implementation of the SLMIS.

2. National SLMIS Specialist

38. The national SLMIS specialist will:

- (i) Assist the international SLMIS advisor in; (i) design of information technology component; and (ii) design of data sharing systems;
- (ii) Provide inputs into the systems design document;
- (iii) Prepare Russian language versions of all systems design documents;
- (iv) Provide ongoing advice and support to National SLMIS implementing agencies;
- (v) Develop and maintain multicountry level information systems;
- (vi) Prepare annual multicountry SLMIS reports; and
- (vii) Provide Russian language versions of annual multicountry SLMIS reports.

B. Methodology and Capacity Development Team

39. An international service provider will be recruited to provide the methodology and capacity development team. The methodology and capacity development team, which will report to the head of CACILM Secretariat, will:

- (i) implement all activities under component three National SLMIS Capacity Building including: training in basic land degradation assessment techniques, establishment of national baseline; and capacity building for the LADA tool box for local Assessment;
- (ii) Prepare or coordinate preparation of the national baseline reports for each country;
- (iii) Participate in the system design team
- (iv) Provide inputs into the systems design document on monitoring and data collection component of the SLMIS system;
- (v) Prepare or provide appropriate guidelines and/or manuals for all data acquisition;
- (vi) Prepare or provide appropriate guidelines and/or manuals for field monitoring teams; and
- (vii) Provide both English and Russian language version of all training materials, reports, guidelines and manuals.

C. National SLMIS Implementing Agencies

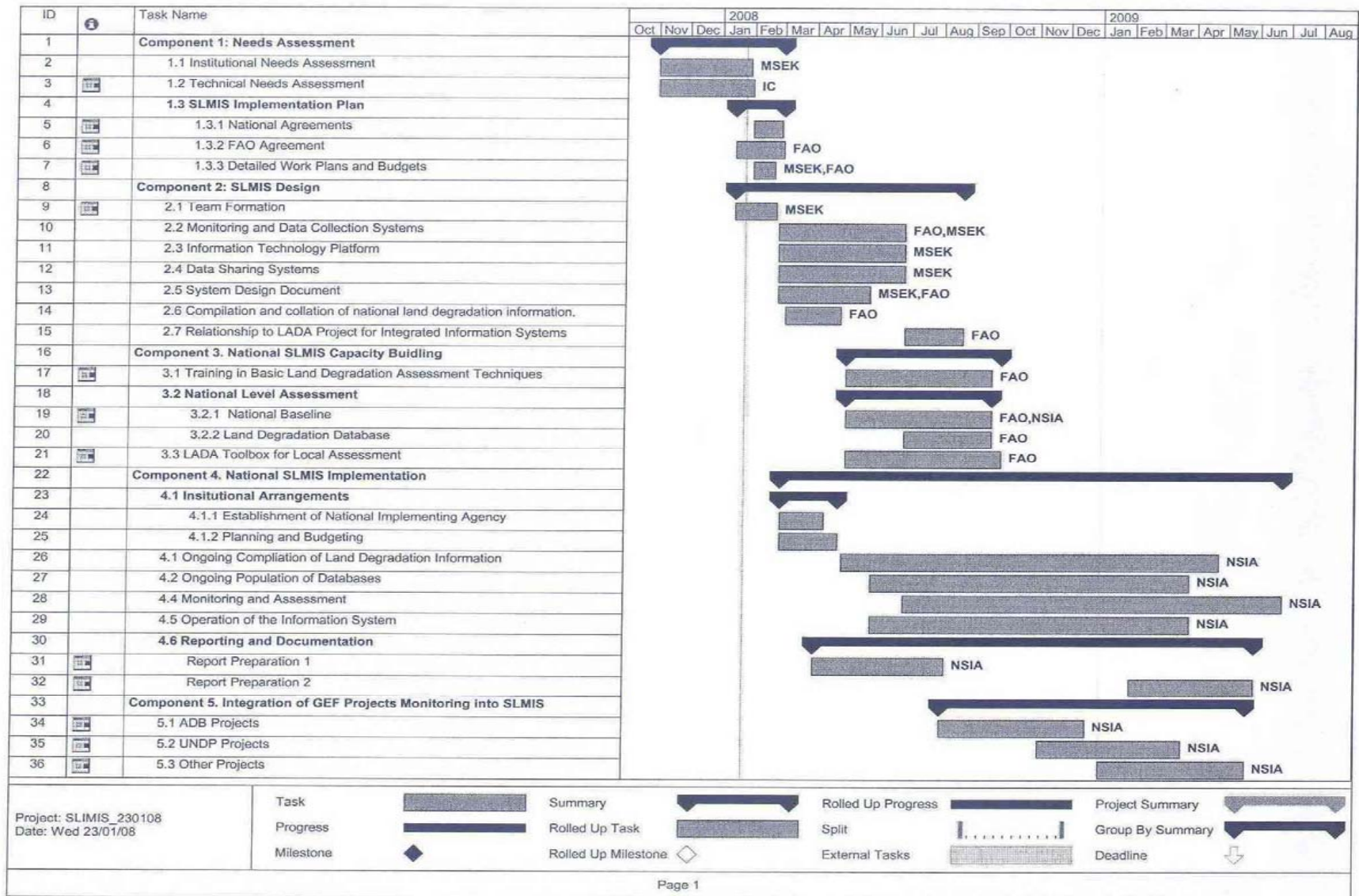
40. National SLMIS implementing agencies will be established in each country. Each national SLMIS implementing agency will:

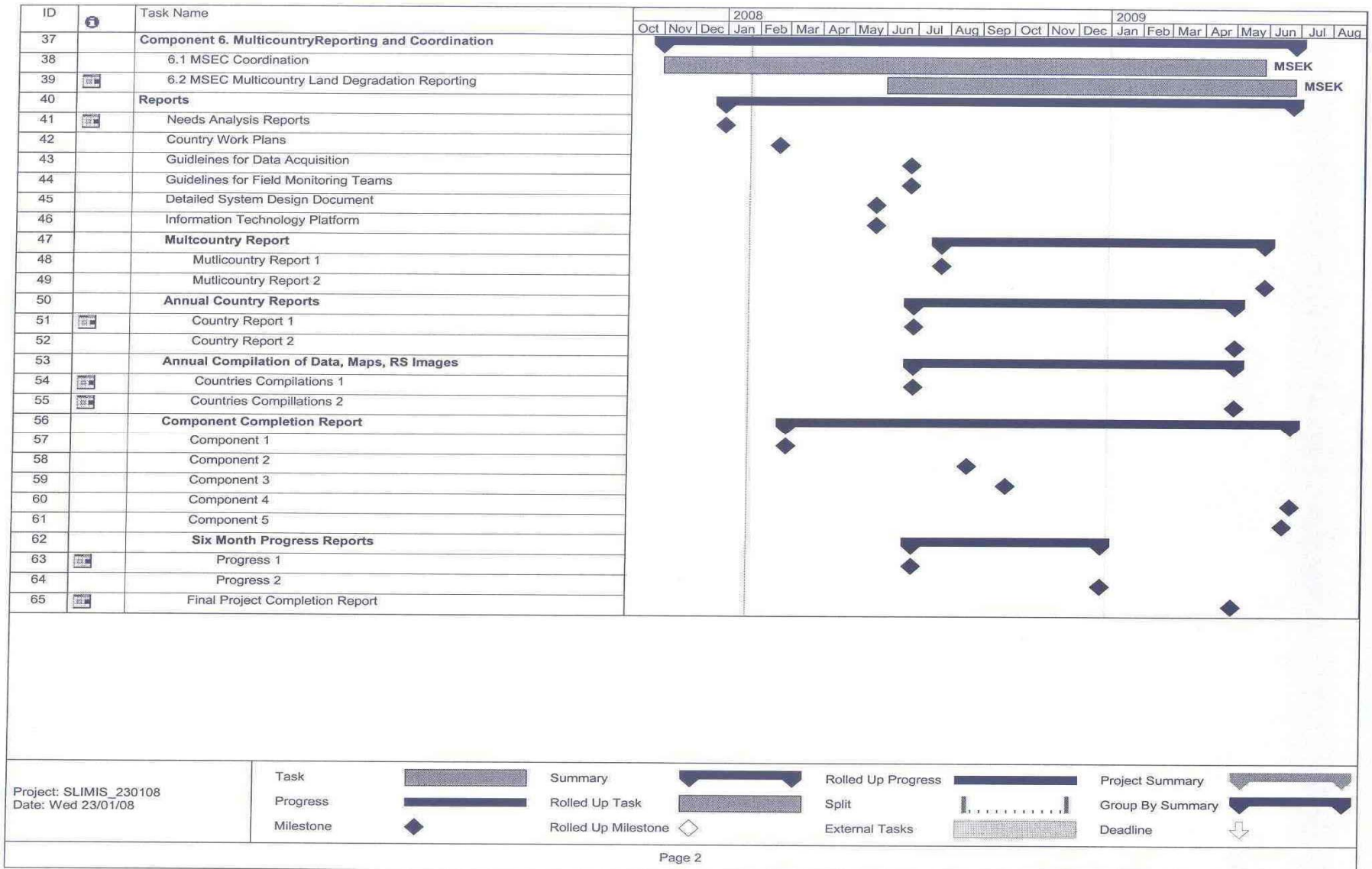
- (i) Develop a work plan and budget in coordination with the National Secretariat;
- (ii) Recruit all necessary staff for the National SLMIS team;
- (iii) Provide office space for the National SLMIS team; and
- (iv) Coordinate and manage the National SLMIS Team.

1. National SLMIS Team

41. The National SLMIS Team

- (i) Compile all available information on land degradation within the country;
- (ii) Provide copies of all available information compiled to CACILM Multicountry Secretariat's Multicountry information system;
- (iii) Support and participate in training and capacity development activities implemented under component 3, National SLMIS Capacity Building;
- (iv) Conduct monitoring and assessment activities on selected sites;
- (v) Integrate monitoring information from other GEF funded project under CACILM into the National SLMIS databases;
- (vi) Develop and operationalize the National SLMIS computer system; including all data acquisition, data storage, analysis, and reporting activities;
- (vii) Provide relevant statistics, maps, GIS layers to support CACILM knowledge management activities; and
- (viii) Prepare annual national SLMIS reports to the NCC and CACILM Steering Committee.





Cost Estimates and Financing Plan

Item	Component 1	Component 2	Component 3	Component 4	Component 5	Component 6	Total
A. Asian Development Bank Financing							
1 Consultants							
a. Remuneration							
i. International Consultants	25,000	60,000				25,000	110,000
ii. Domestic Consultants						40,000	40,000
2 International Travel and Per Diem	10,000	15,000				10,000	35,000
3 Training Seminars and Conferences		10,000				20,000	30,000
4 National Agreements				400,000	75,000		475,000
5 FAO Agreement		50,000	450,000				500,000
6 Local Transportation							
7 Data collection studies and surveys							
8 Equipment				125,000		20,000	145,000
9 Publication, reports, communication						10,000	10,000
10 Contingencies						55,000	55,000
Subtotal A	35,000	135,000	450,000	525,000	75,000	180,000	1,400,000
B. FAO Financing (in-kind)							
1 FAO Lead Personnel			70,000				
2 Ongoing LADA activities			80,000				
Subtotal B			150,000				
TOTAL	35,000	135,000	600,000	525,000	75,000	180,000	1,550,000