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INTEGRATED SPATIAL PLANNING: TRAINING REPORT AND RECOMMENDATIONS

MARCH 11, 2006

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Photo credit:
Chris Bennett for ESP Jakarta/West Java

Development Pathways in Action. During a meeting with farmers who inhabit the highland of Cikundul river basin on March 7, 2006, the Watershed Management Team of West Java and the farmers worked together to produce a more accurate and useful map of Cikundul sub watershed (Citarum Watershed).

When the GIS-made map was shown to the meeting attendants, the event came to life when participants were invited to make corrections directly on the map. The event was a successful one as the evident blend of seriousness and good humor of the participants resulted in a corrected map.

INTEGRATED SPATIAL PLANNING: TRAINING REPORT AND RECOMMENDATIONS

Title:	**Integrated Spatial Planning: Training Report and Recommendations.**
Program, activity, or project number:	**Environmental Services Program, DAI Project Number: 5300201.**
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Contractor name:	**DAI.**
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LIST OF ACRONYMS

ASTER	Advanced Airborne Thermal Emission and Reflection Radiometer
CLRIM	Community Land Resources Inventory Map
DAI	Development Alternatives, Inc.
ESP	USAID/Indonesia Environmental Services Program
FS	Financial Services Delivery Team
GIS	Geographic Information Systems
GIST	ESP's Geographic Information Systems Team
HSP	USAID/Indonesia Health Services Program
IMS	Internet Mapping System
PDAM	*Perusahaan Daerah Air Minum* (Municipal Water Company)
PRA	Participatory Rural Appraisal
SD	Service Delivery Team
WSM	Watershed Management Team

EXECUTIVE SUMMARY

The overall purpose of this technical assistance was to identify and recommend spatial planning applications and training activities that foster participation and improved management for the Environmental Services Program (ESP) main technical components. ESP's Geographic Information System (GIS) component is a cross-cutting theme and is supported by a team of five specialists. The GIS team currently supports all ESP components mainly through cartographic production-on demand mapping, data development services, and partner training. This assistance follows the GIS needs assessment conducted in October 2005 and is part of capacity building activities aimed at expanding the role of the GIS team from on-demand mapping to a strong spatial planning team that plays an active advisory and planning role for all ESP technical components.

The specific objectives of the consultancy were:

1) Introduce an objective-oriented, flexible integrated spatial planning framework and development pathways approach;
2) Provide practical training in spatial analysis applications/integrated spatial planning for the ESP GIS team;
3) Identify opportunities for improved management and planning through using a landscape-based approach.

The report describes the STTA in the following sections:

Section 1 provides a brief overview of the Integrated Spatial Planning Approach;
Section 2 discusses the practical training example, analysis and findings
Section 3 identifies spatial planning applications and opportunities and outlines recommendations for using the integrated spatial planning approach. A sub-section is devoted to Community Mapping Applications.

1. INTEGRATED SPATIAL PLANNING: THE SCALABLE PATHWAY APPROACH

DAI's landscape approach for integrated planning and action is defined as an objective-oriented flexible framework to plan interventions, direct resources, and monitor activities. The approach is aimed at integrating local knowledge and factors in a single landscape context to visualize the map(s) of greatest potential for a specific objective: the "development pathway".

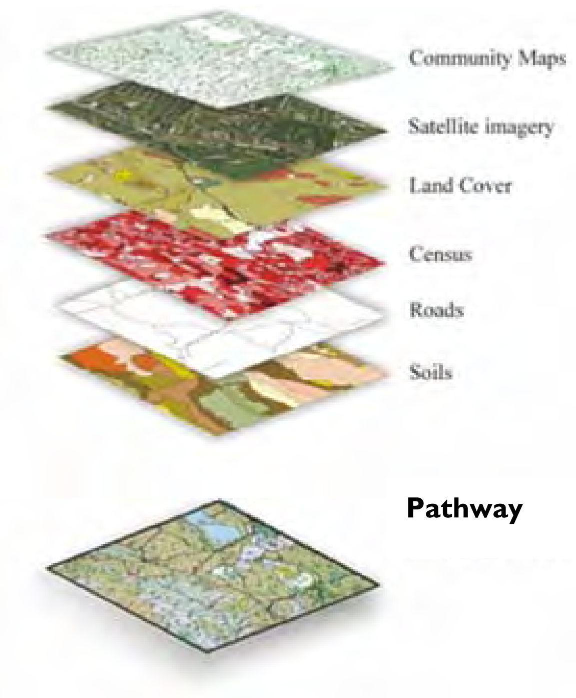


Figure 1 Spatial Planning.

The integrated spatial planning approach is:

- Scalable: the framework can be adapted for pathways at various levels, from regional to local;
- Participatory: systematic spatial assessments draw on local knowledge to define landscape characteristics and units;
- Results-oriented: integrated spatial analysis is driven by a specific development objective.

The integrated spatial planning approach can be used and adapted for planning and monitoring at various levels, from a broad (regional or provincial) level to a local (group village or provincial) level.

An example of the Integrated Spatial Planning framework for the broad level planning is presented in Figure 2, below. The framework is adapted to a specific scale and objective and is used by a team that includes local experts, authorities and spatial planners. To use the framework the team defines a clear objective and identifies a management unit that is appropriate for planning effective interventions.

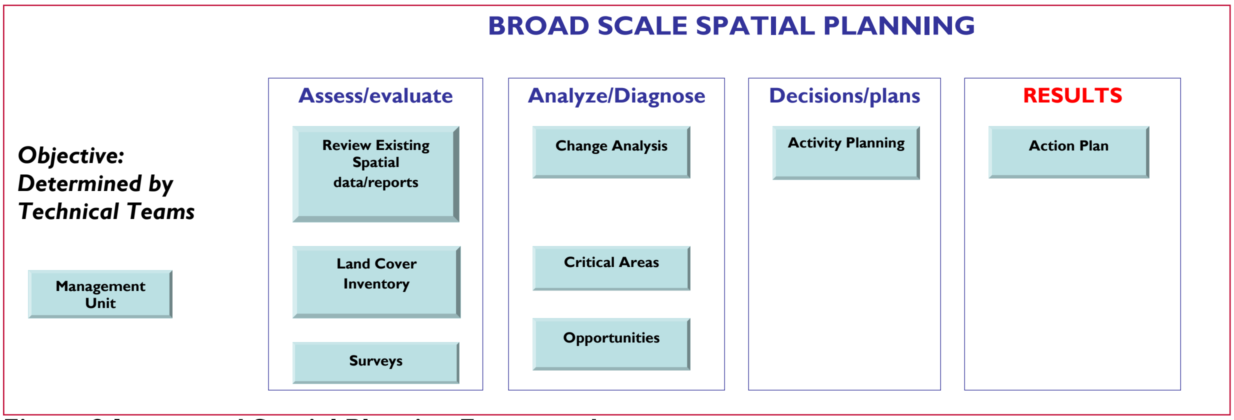


Figure 2 Integrated Spatial Planning Framework

ESP has already employed spatial analysis tools to help select priority management areas for the watershed management component. For this component, the broad scale management unit is the watershed. The selection of priority watersheds was partly based on factors that include percentage of designated protected lands, threats to bio-diversity, and the watershed importance for water supply.

At the sub-watershed level, the choice of a management unit can differ between priority watersheds. For example, a sub-watershed management unit under 2000 ha could represent a landscape unit for planning land rehabilitation interventions in a given watershed.

The integrated spatial planning approach will lend value to ESP's overarching strategy in all priority watershed areas through:

- Fostering community participation and adoption of local knowledge in the planning process
- Promoting a Cross-cutting approach that links government institutions
- Transferring innovative spatial methods and capacity building
- Creating transparency for open dialogue and debate for community development
- Capturing best practices and communicating information across administrative boundaries.

ESP's utilization of the landscape approach can vary greatly between components, due mainly to the choice of management units and different objectives. While this warrants the utilization of different spatial analysis tools in the framework, the component "pathways" can be easily integrated across components for improved reporting and coordination between components. Most importantly, the GIST is represented in all ESP priority regions and can effectively support this integration across components.

For the purposes of this technical assistance, examples of the integrated spatial planning were developed for the Watershed management component. Even though the practical applications used in the training support specific watershed management "pathways", the team discussed opportunities for all ESP components. Future applications and training will build on the GIST experience in using integrated spatial planning to develop objective-based "pathways" for other ESP components.

2. INTEGRATED SPATIAL PLANNING TRAINING

ESP's integrated spatial training sessions focused on developing criteria and integrating information for "pathways" at sub-watershed and local level. The training was equally aimed at developing technical skills in raster-based analysis for the GIST and at increasing awareness in the Watershed Management Team on the role of spatial planning in the decision support process.

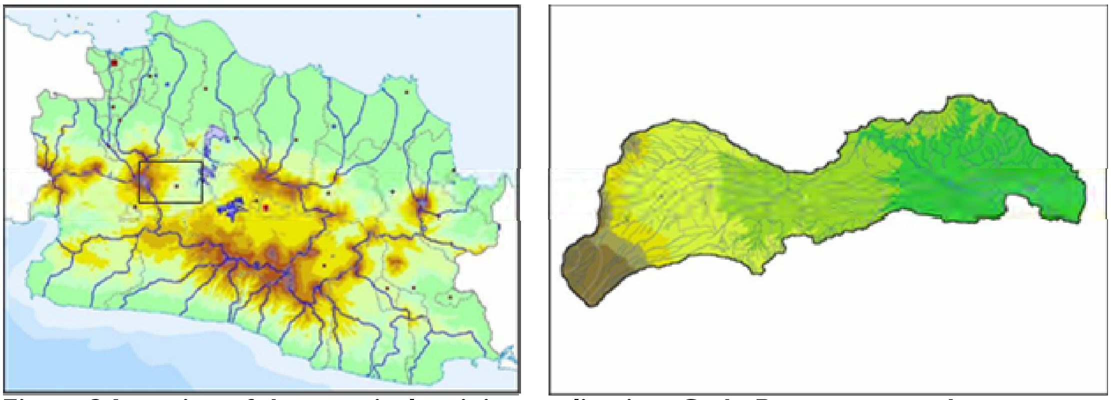


Figure 3 Location of the practical training application: Gede-Pangrango catchment area (left) and Cikundul Watershed (right).

2.1. FIELD BASED ACTIVITIES

The selected location for field-based practical training applications is in the Cikundul Sub-Watershed, West Java. The watershed is part of ESP's West Java high priority catchments. Covering an area of over 22,000ha, Cikundul watershed is an important catchment area supplying drinking water for the cities of Cianjur and Jakarta. (through the Cirata reservoir). The field activities were based from the town of Cipanas in the upper Cikundul catchment. The practical field training included one trip to Cimacan village and two trips to Sukatani village. The objective of the field trip was to develop a practical training exercise for applying the integrated spatial planning approach at local level.

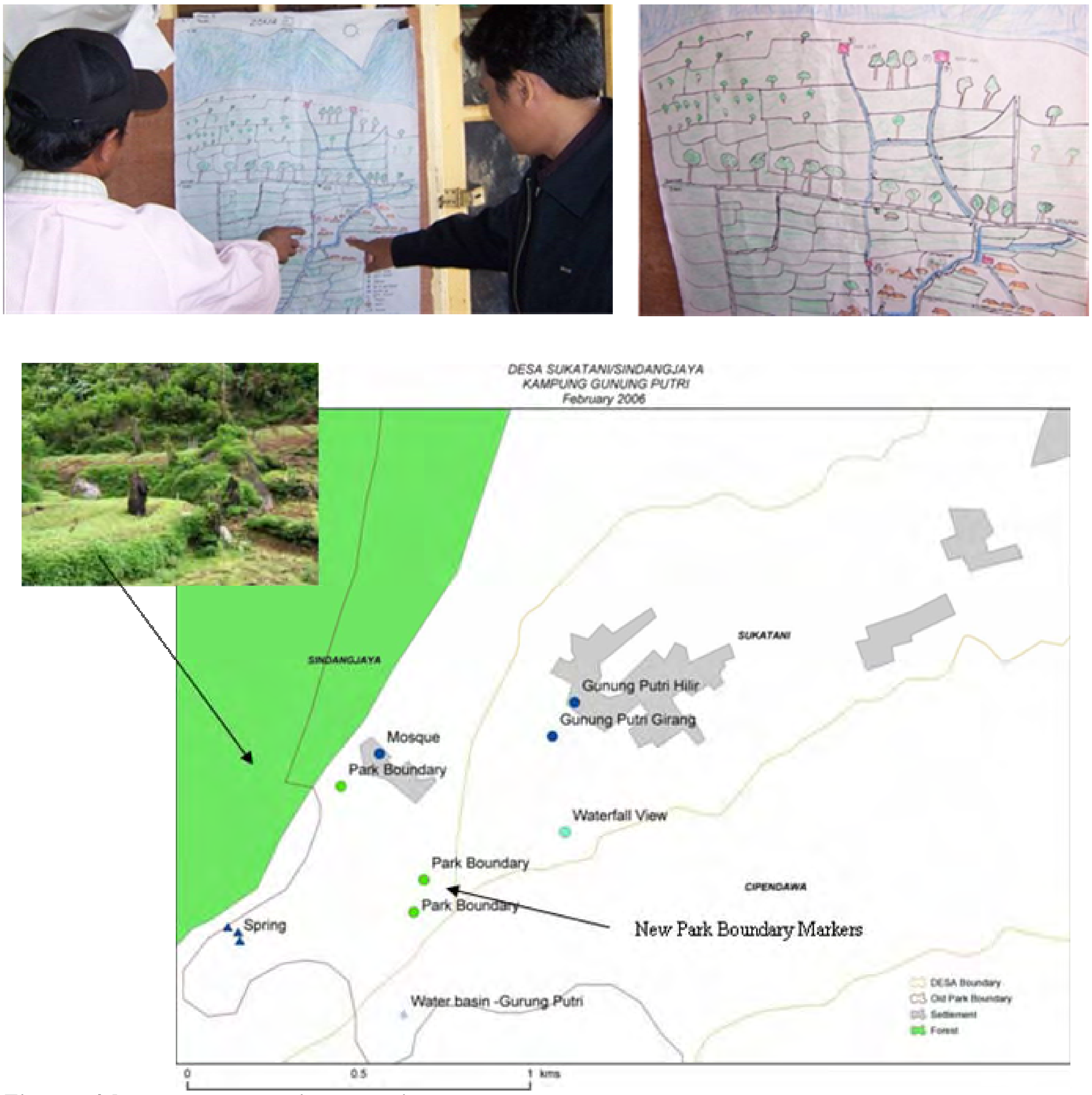


Figure 4 Local level spatial planning.

At the local level, the integrated spatial planning approach is used to evaluate stakeholder land cover and associated land use, and to develop spatial data products to inform discussion regarding stakeholder interaction with the landscape.

Figure 4, above, shows a map of the Gunung Putri Community in Sukatani village. The team used community sketch maps developed during PRA activities to identify important landmarks and boundaries. A team of ESP specialists and villagers traveled to the sites together with a local facilitator. An important finding was that a recent government decision has modified the official National Park Boundaries (Figure 4). The community is adjacent to the National Park and has been farming on the lands bordering the park for many years. Vegetable farming on steep slopes using terracing is common for farmers in this community. The modification of the Park Boundaries, if translated into conversion of farmland to secondary forest, will have a deep impact in farmer's ability to sustain vegetable production. The land is intensely cultivated year-round. The team traveled to the old boundary of the

National Park where recent forest clearing for vegetable farming was observed (Figure 4, above). Participatory land resources inventory can help identify the amount of land available for farming, the percentage of farmland located on steep slopes and within the new park boundaries.

Water resources are scarce during the dry season: the community main water source is located in Sindangjaya village (Figure 4) and the stream that forms the border between the two villages runs dry during the dry season. The farmers indicated that the springs in the area had decreased water flow during the past few years. A poultry farm located downstream is using water from a spring in the National Park and there have been discussions between upstream communities and the poultry company about available water resources.
Given the limited timeframe, the map product was developed in 24 hours and does not include a complete land resources inventory. Satellite imagery was used to update the forest cover information (Figure 4). A follow-up activity is planned to update and validate the land resources map inventory with the local community.

Based on the Cikundul watershed field activities, a two-step approach was proposed to combine the current participatory mapping activities with a rapid assessment of land resources inventory. This approach is described in Section IV.

The discussion generated by the example map products highlights the value of participatory land resources inventory maps for local activity planning. ESP technical team specialists indicated participatory land resources inventory maps can be used to identify opportunities for multiple objectives, for example: mediation/facilitation between the farmers and the Park Authority, land rehabilitation activities, training to improve water resources management, and activities for improved Community sanitation.

The field-based applications included GPS data collection, real-time navigation using maps and satellite imagery, and ground truth/validation of land cover inventories.

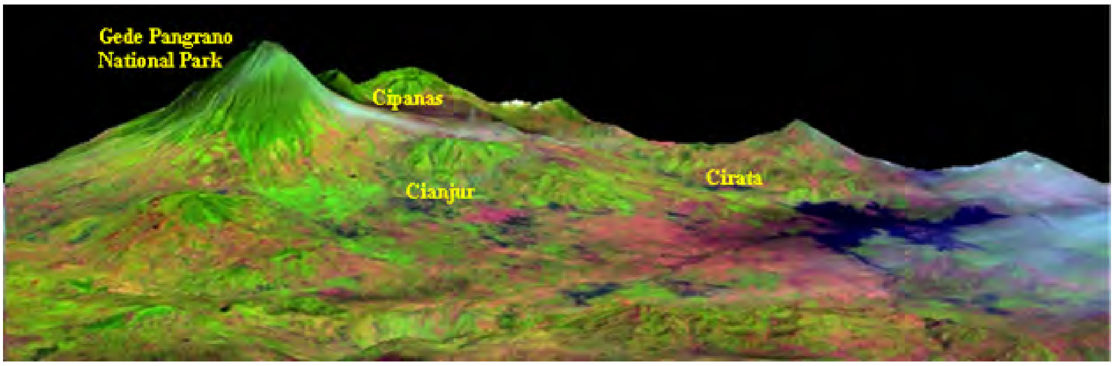


Figure 5 View of the landscape in Cikundul Watershed.

2.2. TRAINING IN JAKARTA

Technical spatial planning training continued with practical sessions in the Jakarta ESP office. The Jakarta-based training focused on developing applications within the integrated spatial planning framework for the Cikundul sub-watershed. The training included demonstrations, examples and practical exercises that covered the following topics:

- Raster data model
- Cartographic modeling
- Triangulated Irregulated Networks and Digital Elevation Models
- Surface Analysis
- Distance Operators
- Introductory Image Processing: Image Exploration and Interpretation overview

The training provided an overview of the IDRISI software interface and basic operations. Hands-on examples and demonstrations were provided for each of the topics presented. The GIST completed a series of practical exercises and by the end of the training sessions the team was familiar with basic operations in IDRISI: establishing data paths, importing data, changing the reference system for a raster and vector dataset, re-classification of raster datasets, calculating areas, deriving slope and watersheds.
Objective-based spatial analysis was used throughout the training in combination with the model building tools in IDRISI.

Figure 5, above shows a representation of the landscape in Cikundul watershed developed using the fly-through option in IDRISI. A satellite image was draped on a digital elevation model for the Cikundul watershed developed through interpolation of contour lines. Such representations foster integrated spatial planning discussions by improving understanding of the landscape and providing a springboard for illustrating spatial planning concepts.

Two Advanced Airborne Thermal Emission and Reflection Radiometer (ASTER) scenes were used in the training to familiarize the team with different spatial datasets and to provide a potential resource for updating the Cikundul land cover inventory.

2.3. RECOMMENDATIONS FOR FUTURE TRAINING

As the ESP GIST is becoming familiar with objective-based spatial analysis, the team will need to prioritize their time for planning sessions and application development with technical ESP teams. The ESP GIST will need to be pro-active in guiding integrated spatial planning applications. The GIST will need to gradually build confidence in this process through informing technical specialists about the advantages the approach offers for planning and managing activities. This is best achieved through developing successful applications for a selected location and given objective and presenting presents the process and results for a wider ESP audience.

The ESP GIST will benefit from gradually building additional skills in the following areas:

- Community Land Resources Inventory
- Objective focused spatial analysis
- Suitability/Probability Mapping
- Image interpretation and classification applications
- Time-series analysis
- Survey development instruments
- Geo-databases

3. ESP SPATIAL PLANNING APPLICATIONS AND RECOMMENDATIONS

The GIS Training and Assessment Report (Fly, Jennifer, October 2005) identified potential spatial planning applications for ESP components. This section highlights new findings and recommendations for spatial applications that will lend value to ESP activity planning, monitoring and reporting. Planning and Reporting for Watershed Management (WSM), Service Delivery (SD), and Financial Services Delivery (FS) can be supported through these applications.

3.1. CAPACITY BUILDING FOR MUNICIPAL WATER COMPANIES (PDAMS)

ESP is working with selected PDAMs to increase awareness in the use of spatial analysis for decision making and to provide training in the use of GPS equipment and data collection. Future activities will support selected PDAMs in developing a Management Information System that is linked to a GIS for improved data management and analysis. Recommendation: In addition to providing training and on-demand technical advising services, the GIST could help selected PDAMs to develop a strategy for adopting scalable GIS applications through gradually adding new functionality and capacity building. The GIST could also help develop spatial data standards and validation procedures for selected PDAMS whenever these are unavailable.

3.2. SANITATION MAPPING APPLICATIONS

ESP is currently developing a sanitation mapping activity for six selected locations. Improved planning and management of urban sanitation services requires improved access to information. Given the importance of location for planning investments and establishing sanitation priorities, city sanitation decisions are best informed by information that is captured and analyzed spatially. Sanitation mapping facilitates the integration, validation, analysis and dissemination of relevant spatial and non-spatial information. To achieve this goal, ESP is working closely with its local partner BORDA. The GIST and DAI GIS specialists will provide technical advice and feedback upon the completion of the sanitation mapping scoping reports.

3.3. NEW ESP APPLICATIONS: HEALTH AND HYGIENE

ESP recently conducted an assessment of health and hygiene related activities and is planning to improve the integration of these activities in all ESP components. Specific actions designed to foster this integration will be described in an Action plan. Analysis of health information in a spatial environment helps highlight gaps and priorities and reveals important spatial relationships. The ESP GIS team will lend value to health and hygiene activity planning through supporting data collection and analysis and integration with other data such as the census or existing surveys. Spatial data will be shared with health programs such as USAID/Indonesia Health Services Program (HSP).

3.4. ACTIVITY MAPPING

ESP uses a centralized information system (TAMIS) for project administration, logistics management and monitoring of outcomes. The DAI-GIS Specialist, Jennifer Fly, worked with the ESP TAMIS manager to develop a GIS View (Figure 6, below) that integrates relevant information on outcomes, including district, province, type of event, participants, and partners. Consistent spatial information can be available to ESP regional managers, partners and technical teams through using a user-friendly internet-based application.

	Component	Output Title	Event Type	Total # Participants	Due Date	Partne
*	Component 1: WS - Watershed Management and Biodiversity	Aceh WS Kr Aceh Site Selection	Other	6	01/13/2006	
	Component 1: WS - Watershed Management and Biodiversity	Aceh WSM Area Selection	Other	6	12/19/2005	
*	Component 1: WS - Watershed Management and Biodiversity	Aceh WSM Sabee - Geupu Site Selection Matrix	Other	4	01/18/2006	
*	Component 1: WS - Watershed Management and Biodiversity	Aku Anak Negri Seribu Urat Sungai	Conservation Awareness Campaign		09/30/2006	
*	Component 1: WS - Watershed Management and Biodiversity	Analysis on the current social foretsry program to support rehabilitation program			02/20/2006	Perum Perhutar Desa,Co group,N
	Component 1: WS - Watershed Management and Biodiversity	Appreciative Inquiry Training	Training Course		09/30/2006	

Figure 6 GIS Component in IESP TAMIS.

Recommendation: the GIS Team Coordinator should test the export and mapping of the data from ESP TAMIS using the GIS View to ensure the mapped results can be clearly interpreted and the information stored supports ESP's reporting requirements. The ESP activity information can then be posted on the ESP Internet Mapping Site. A demo Internet Mapping Application has been developed and is currently hosted on DAI's server in Bethesda. The map viewer will be available to ESP users for feedback. When the test is completed and the application meets the needs of the ESP users, a link to the Interactive Mapping Site could be added to ESP's website.

3.5. SUPPORT FOR DATA COLLECTION/SURVEY DEVELOPMENT

ESP has several data collection and survey design activities underway; given the time constraints this assistance did not extensively review data collection efforts. In addition to the centralized information system (TAMIS), there are rapid surveys and assessments conducted for watershed management and service delivery components. Some of the information collected through these surveys is spatial in nature and could be integrated in a GIS for ease of analysis. Objective-based planning can also support survey and data development by focusing data collection effort. In addition, integration of survey information in a spatial database, will, whenever possible, support a consistent ESP data management approach and will allow for ease of access to the information and analysis of spatial relationships.

The GIST coordinator already developed example survey forms that can be used to collect relevant information on springs, water intakes, hydro-geology characteristics. These survey forms are currently in hard copy format and analyzing the result requires manual data input in a table form. Following feedback from the technical teams, a simple survey instrument will facilitate the survey data collection and data analysis. The STTA will provide follow-up with the GIST coordinator to test a simplified data entry instrument.

The GIST is currently using different GPS training materials and various applications for downloading and uploading the data. As recommended in the GIS Assessment Report (Fly, Jennifer, October 2005), the team will benefit from establishing a consistent ESP GPS data collection strategy and from developing a unified GPS training guide for partners. The STTA will follow-up with the GIST to gather more information about GPS data collection and to develop a series of specific recommendations to help start this process.

3.6. WATERSHED MANAGEMENT PLANNING

Based on the Draft Work Plan for Cikundul (Draft Work Plan for Cikundul Sub-DAS management planning process), the ESP-facilitated watershed management plans should be developed rapidly in close coordination with stakeholder groups. The integrated spatial planning approach is a cutting-edge spatial analytical framework driven by local expert knowledge at every planning level that can adequately support watershed management planning. Using spatial analysis tools within this framework promotes rapid watershed selection, ranking of associated watersheds and targeting priority areas. The approach facilitates discussion and planning among members of the stakeholder group. Figure 7, below illustrates the use of the Integrated Spatial Planning Approach for Watershed Management Planning.

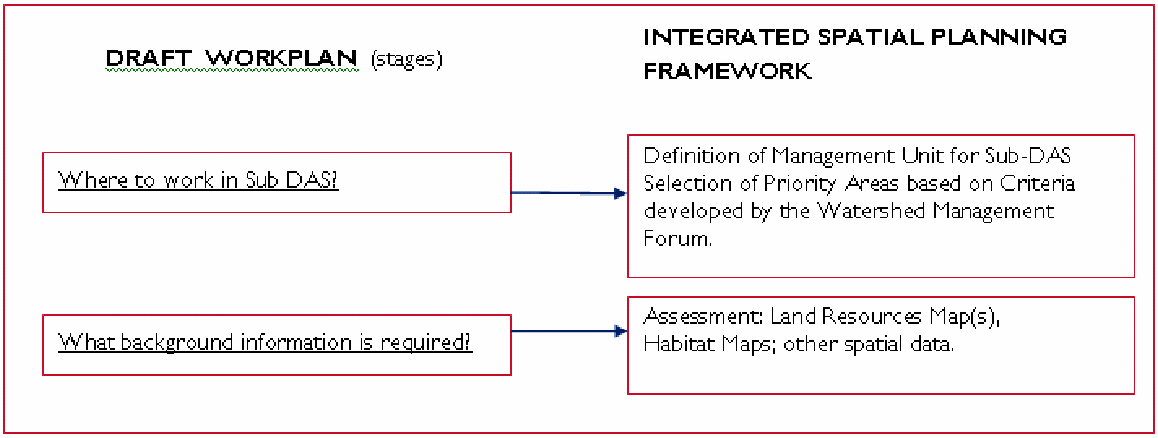


Figure 7 Example - Using the Integrated Spatial Planning Approach for CIKUNDUL SUB_DAS WATERSHED MANAGEMENT PLANNING.

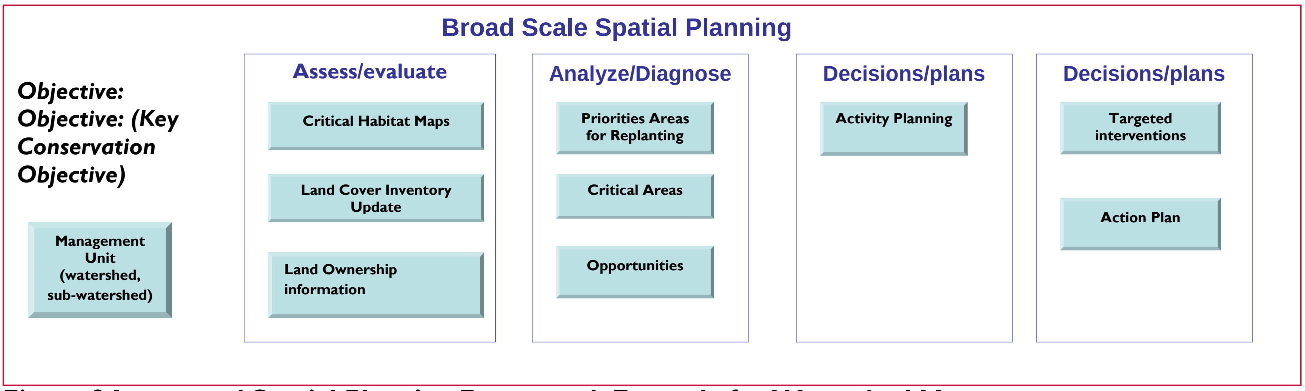
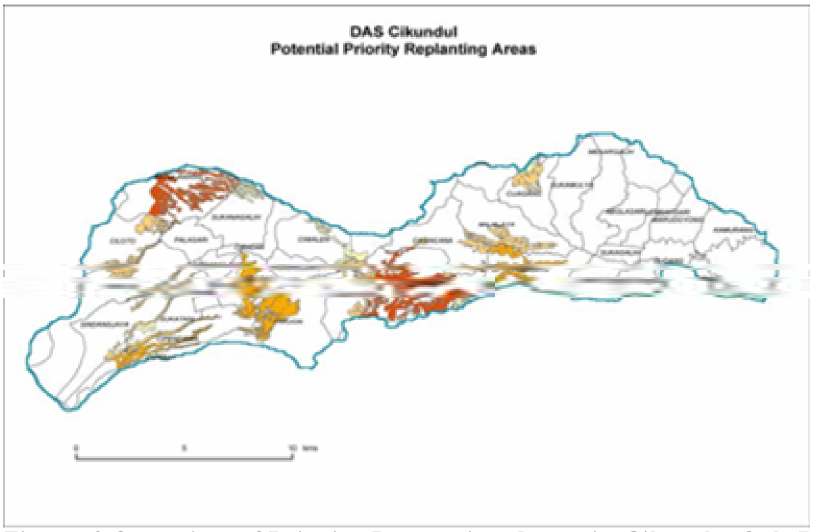


Figure 8 Integrated Spatial Planning Framework Example for Watershed Management Planning.

The framework shown in Figure 8, above is an example of planning at the watershed/sub-watershed level. The framework was used for discussion and planning for the ESP West Java WSM Team. Using the framework for watershed management planning requires an objective (i.e, a conservation objective) and a management unit (watershed, sub-watershed). The watershed management planning stages can be addressed in an evaluation, analysis and planning step resulting in a watershed action plan for a given objective or a set of objectives.

Figure, below shows an example from the Cikundul WSM planning exercises. A set of criteria defined by the technical experts was used to develop a map that can inform decision through illustrating the greatest potential: the pathway map. In this example, the areas of greatest potential for replanting were selected using a slope criteria (over 20%) and land use/land cover category (areas that are currently forest, irrigated rice, settlement or plantation were excluded).



DESA	AREA (ha)
Kubang	22
Gadog	27
Mekarjaya	30
Kutawaringin	33
Sukanagalih	44
Ciherang	51
Ciwalen	67
Sukatani	72
Cikancana	80
Cijagang	90
Cimacan	95
Sindangjaya	115
Cikanyere	122
Ciloto	128
Majalaya	140
Cibodas	158
Padajaya	190
Cipendawa	199
Pakuon	228
Batulawang	374
Sukaresmi	498

Figure 9 Selection of Priority Replanting Areas in Cikundul Sub-DAS (example).

3.7. PARTICIPATORY MAPPING

ESP's Participatory Mapping activity is aimed at building capacity for improved land-use planning at stakeholder level. In addition to building local capacity, this activity can help describe how communities interact with the landscape, in this case the watershed. This interaction is important for promoting transformational change aimed at conserving limited water resources.

ESP's GIS coordinator/West Java GIS specialist developed a participatory mapping guide document that details the methods and equipment required for mapping at local level. The guide was recently used during the facilitator technical training (training of trainers). The guideline documents will be transferred to all ESP regions as support training material for facilitator participatory mapping. The documents describe traditional mapping methods using measuring tape, compass, clinometers and a given grid. The guide includes a key for calculating distances and slope based on measured angles on the ground. The guide also details several mapping rules, such as choice of symbols, scale, legend. At time of this technical assistance, no map produced through these methods was yet available for consultation; hence these recommendations are based exclusively on discussions with the GIST and on documents developed for the participatory mapping training.

While the guide is very thorough in detailing basic mapping methods, the guidelines seem to be following a prescriptive government approach. Some of the guidelines do not seem consistent with ESP's participatory mapping approach. Below are specific areas where the approach should be adapted to the participatory nature of the ESP community mapping:

1) The approach is focused more on transferring traditional yet affordable cartography skills and less on applying these skills and new affordable technology for effective land use planning (mapping versus using the map products for planning). To pique interest in improved land management and planning, a rapid assessment is needed to

produce inventories that can be used in planning. The mapping skills can be developed and applied for detailed plot mapping and over a longer time period.

2) The guide contains rules on what type of information can and should be represented on the map, such as electricity poles, repeater stations etc. This could constrain the participatory nature of the exercise as the information to be represented on the maps should be determined through consultations with members or representatives of the community.
3) The activity is conducted exclusively by local facilitators that have been trained by ESP-GIST members in traditional mapping methods. The training is theoretical and developed for a group of facilitators who apply the newly gained cartographic skills to later help communities map their land holdings. The in-field presence of an experienced spatial planner (ESP-GIST member) will help the facilitator become familiar with practical utilization of map products which can greatly enhance the interaction with village groups. In addition, as was the case in the Cikundul field exercise, the presence of technical team members for selected participatory mapping exercises foster discussions on land resources and could result in identifying opportunities for re-habilitation, improved land management or mediation by ESP.

In summary, the current participatory mapping approach, while affordable, appears to be time-intensive and the results seem to be difficult to interpret when planning at community or group village level. A two-step approach is being proposed to 1) develop a rapid, affordable assessment of local land resources (this process is described below); and 2) transfer traditional mapping skills to update the land inventory and to allow for detailed mapping. This approach combines a short-term, rapid assessment to inventory resources and use the map products to plan land use with a longer-term process for transferring mapping skills that can be supported at the local level. Several modifications are proposed to adapt training materials for transferring mapping skills during practical participatory exercises. Figure 10, below, shows a description of the combined participatory mapping approach. The term "community" can represent stakeholders and their land holdings in a a small village (kampung), a group of villages (desa) or a group of small villages whose land is shared across common natural resources (such as a group of small villages in a sub-watershed).

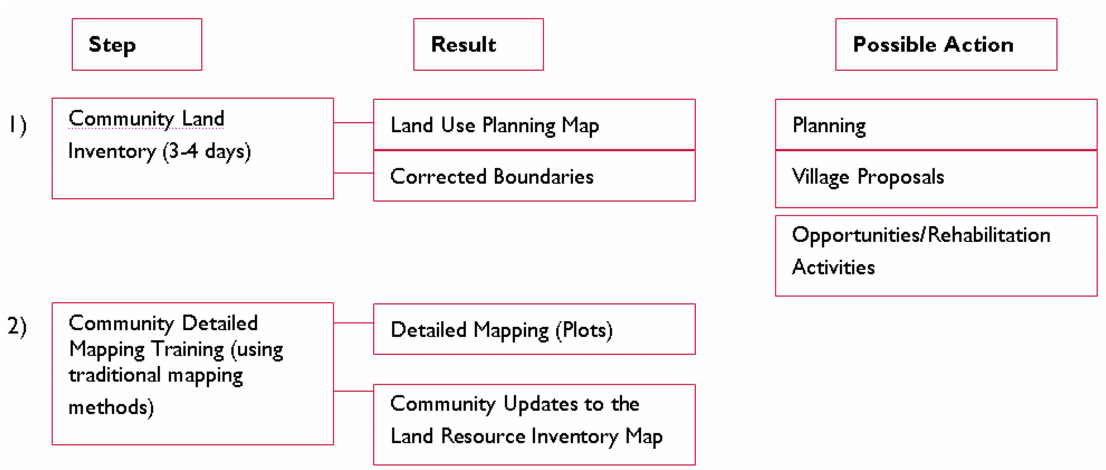


Figure 10 Combined Participatory Community Mapping Approach.

3.8. COMMUNITY LAND RESOURCES INVENTORY MAPPING

The land resources inventory involves teams of stakeholder representatives and officials who develop a sketch map and travel to each boundary and point represented on the map to record a GPS coordinate position. The local sketch map can be developed through PRA-type activities or discussions with stakeholders . Transparency is critical throughout the mapping process - every community member must have a 'voice' in the preparation and validation of the land resource map as it will be used as a basis for local land resource management planning.

The map developed using GPS data collection is integrated with an updated land cover map to create a Community Land Resources Inventory Map (CLRIM). Community validation of the map, a critical activity that lends credibility to the map product, is usually held following the development of the CLRIM. Each community map requires 3-4 days. The final CLRIM map product communicates reliable land cover area estimates and distribution to community, local and national government land use planners. Targeted interventions aimed at sustainable utilization and equitable distribution of community land resource assets as an alternative to exploiting fragile ecosystems are informed by the VLRIM.

The rapid land resources inventory approach was used during the field trip in Cikundul watershed in Sukatani village. While the results do not represent a final land resources inventory map, the map did generate a lot of discussion around boundaries, available land resources, water sources and opportunities for ESP activities at community level. The map will be completed and validated at community level. This exercise showed that participatory mapping represents an ideal environment for developing synergies between ESP components. For example, community land resources inventories can be used to identify opportunities and plan activities for a variety of local level watershed management and service delivery interventions: land rehabilitation, improved land management and soil conservation, water resources conservation, and community based sanitation.

4. FOLLOW-UP AND NEXT STEPS

This assistance was focused mainly on providing technical training for the GIST and introducing integrated spatial planning applications to ESP technical teams. In addition to identifying further training needs, discussions with ESP technical teams and the GIST revealed the need for providing follow-up in areas such as monitoring and evaluation (particularly for monitoring WSM outcomes), activity mapping, participatory community mapping, survey development, and integrated spatial planning. The DAI-GIS team will also continue to provide technical support as needed from the DAI Home office.

5. CONCLUSION

ESP benefits from the technical expertise of five GIS specialists who provide mapping services to all ESP components. A field exercise conducted in Cikundul showcased the role of the GIS specialists in providing guidance and technical expertise for planning and managing ESP activities. As the team is defining its advisory role in regional technical teams, the GIS specialists will need to prioritize their time to assist the WSM and SD team with objective-based planning for scalable pathways. The team would benefit from additional training to develop skills in advanced spatial analysis and image classification for updating land cover inventories.

The integrated spatial planning approach creates an opportunity for cross-sector coordination where location serves as a unifying theme for planning and implementing complimentary resource conservation and sanitation activities.

6. APPENDICES

6.1. APPENDIX 1: DAILY STTA SCHEDULE

6.2. APPENDIX 2: TRAINING SCHEDULE

APPENDIX I
DAILY STTA SCHEDULE

DATE	ACTIVITIES	Location
Saturday February 11	Arrive in Jakarta	Jakarta
Monday February 13	Meeting with Sabdo Sumartono, ESP GIS coordinator and West Java Team Meeting with ESP Watershed Management Team Meeting with Cikundul Team	Jakarta
Tuesday February 14	Presentation to Watershed Management Team (West Java and Cianjur)	Jakarta
Wednesday February 15	Review Draft Cikundul Report Meetings with ESP GIS coordinator and Watershed Management Team	Jakarta
Thursday February 16	Departure for Cikundul Watershed. Field trip to Cimacan village. Visit to ESP Cianjur office.	Cipanas/Cimacan Cianjur
Friday February 17	Field trip to Sukatani. In-field data - ground control points and village landmarks	Cipanas/Sukatani
Saturday February 11	Departure for Jakarta	Cipanas /Jakarta
Monday February 20	First day of practical spatial planning and analysis training	Jakarta
Tuesday February 21	Second day of training	Jakarta
Wednesday February 22	Third day of training	Jakarta
Thursday February 23	Fourth day of training	Jakarta
Friday February 24	Field trip to attend the Farmer's Guide Workshop Meeting with the Watershed Management Team in Upper Cikundul	Cikundul Watershed
Saturday February 25	Practical ESP applications	Jakarta
Monday February 27	Presentation to ESP staff Presentation to USAID Meeting and presentation/discussion with WSM team	Jakarta
Tuesday February 28	Departure for Washington in the morning	Jakarta

APPENDIX II
TRAINING SCHEDULE

INTEGRATED SPATIAL PLANNING TRAINING

OBJECTIVES:

- Provide ESP technical teams with an objective-oriented, flexible integrated spatial planning framework and development pathways approach that support site selection and activities planning
- Provide technical training in spatial analysis using IDRISI Kilimanjaro for the ESP GIS Team
- Provide an introduction to image processing using IDRISI Kilimanjaro for the ESP GIS Team

SCHEDULE

February 16 – 18, 2006 (Thursday – Saturday): Field Trip in Cikundul Watershed. Evaluation/Validation of land use data; Navigation and data collection in the field using satellite imagery. Meetings with local NGO representatives/ESP Cianjur team/stakeholders. Trip to a kampung and adjacent farmland to observe existing land resources. Discuss opportunities for ESP activities with technical teams.

February 20 – 22, 2006: ESP GIS team training in Jakarta ESP Office. Topics to be covered include:

- integration of spatial planning tools in an objective-focused integrated spatial planning framework
- introduction to spatial analysis and model development in IDRISI to support integrated spatial planning and development pathways
- introductory image classification

Data used in the practical training: IDRISI tutorial datasets, Cikundul Watershed spatial datasets; data collected during field trip (ground points)

February 23, 24 2006: Meetings to discuss training, team objectives and next steps and to prepare presentation materials;

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