1:50,000 SCALE VEGETATION MAPPING OF SOLOMON ISLANDS

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The thematic mapping of Solomon Islands covers all islands as a joined activity between Lands Department, Forestry Department, Agriculture Department and Department of Environment coordinated by the Ministry of Development Planning and Aid Coordination under the Guidance of SPC-SOPAC and SPC-LRD

Thematic Mapping with THEOS Satellite Images

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1   Introduction

Land cover mapping of Solomon Islands is part of USAID funded food security project where the project implementation plan of the project scheduled this mapping for late 2012. However, there are several mapping initiatives for Solomon Islands which are overlapping. Discussion between IUCN and SPC-SOPAC led into an e-mail conversation of a wide participation and the UNDP / MECDM[1] inception workshop of the SEMRICC[2] project was an ideal platform to discuss the mapping between different potential stakeholders. Therefore SPC-SOPAC sent Wolf to Solomon Islands to investigate if the mapping is needed at an earlier stage.

The report details the communication with different stakeholders of the mapping activities, available resources and capacity and discussed the way to carry out the land cover mapping but does not explain the products which can be created out of the new information layers. This will be a different phase of the food security GIS application. There is also a need to map at 1:10,000 scale at a later stage, which is not detailed in this paper.

2   Purpose of 1:50,000 Scale Mapping

The purpose of 1:50,000 scale land cover mapping is the generation of baseline data. Currently there is no map in Solomon Islands showing the land cover of agriculture, forest including mangroves and forest plantations, pasture land and settlement areas. For any development of land cover through sustainable management the current status of land cover has to be known.

Furthermore the status of land cover has to be documented to create a baseline allowing showing changes through climate change in the future.

The current mapping should create the capacity to be able to map Solomon Islands at 1:10,000 scale, which is only possible with joined work between Forestry, Agriculture, Lands and Environment under guidance of the Development and Planning Ministry with enhanced GIS capacity in all mentioned government bodies.

Finally, the land cover map will be one criteria (together with other) to select hot spots for food insecurity as part of the food security project.

3   Expected Output

The main output will be digital land cover maps, however, at the same time additional output of other nature is generated which will be utilised by the project.

3.1   Digital Land Cover Maps

The existing topographic map coverage of Solomon Islands is available as digital files where contour lines, river system, coastline and road network are digital layers available in MapInfo

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[1] MECDM = Ministry of Environment, Climate Change, Disaster Management and Meteorology
[2] Strengthening Environment Management and Reducing Impacts of Climate Change

format as polylines. The Lands Department has provided a copy of contour lines, coastline and river system.

The project will create digital maps where a new land cover layer will be created through image interpretation showing:

- Forest areas possibly stratified into (i) primary forest (ii) logged forest, (iii) forest plantations,
- Mangrove cover,
- Agriculture areas stratified into different agriculture cover types such as palm oil plantations, rice, etc.,
- Pasture land,
- Water bodies,
- Urban areas and settlements,

These digital maps will be available in all departments involved including the Ministry of Planning and Development.

3.2   Digital Terrain Model

The digital terrain model (DTM) is a bi-product which is needed to conduct a sophisticated atmospheric correction of the image data and ortho correction of the image data as explained below.

The DTM will be produced out of the digital contour lines and is a product which can be used by Solomon Islands for different purposes such as road planning, planning of high voltage lines, etc. The DTM will be created at 1:50,000 scale level.

3.3   Area Database

The area database will be created in Access and allows users to access area information such as "size of pasture land for province X". The area database can be connected with the digital maps but can be also used as stand-alone database. At a later stage annotation information will be added number of farms per province or any other political boundary stored in the GIS.

The area database will later also contain results of thematic overlay. In case that the soil map is fitted into the GIS it will tell the number of hectare pasture land on soil type X or number of hectare of forest on slope above 30 degrees.

3.4   Customised GIS Surface

The GIS will be customised allowing an untrained person to access information through scroll down menus e.g. land cover province x which then will display the map and the corresponding records of the area database.

The GIS customisation will be written in MapBasic by the GIS officers who will do the image interpretation which will contribute to capacity building.

3.5   Enhanced GIS Units and Capacity in Different Departments

In five departments GIS will be installed or improved:

1) The Ministry of Development and Planning currently does not need own GIS capacity to establish GIS layer, however, a system will be installed to display maps and corresponding tabular data.
2) The Forestry Department has a GIS system, which is running. However, hardware and software need update (further information see appendix).
3) The Department of Agriculture Planning & Land Use just purchased new hardware and software and just need the new map layers.
4) The Department of Environment does not have a GIS yet but will be installed by UNDP.
5) The Lands Department has a running GIS but hardware and software need update.

Through on-the-job training at SPC-SOPAC the capacity will be created to carry out the mapping in parallel at SOPAC and in the departments in Honiara. Additional training in Honiara will be provided to allow additional people to understand and utilise the map display.

3.6   Image Data Coverage

The image data which will be purchased will be available as geometrically and atmospherically corrected data set with band combination blue, green, red (normal colour) and in combination green, red, near infrared (false colour infrared combination). The data has 15 m spatial resolution recorded with the satellite THEOS. These image layers are available for many other applications than just mapping the vegetation. It will help to establish new GIS units.

In addition a vegetation index layer will be produced as base line data set. The vegetation index layer shows reflection intensity related to chlorophyll content and plant condition. In case of draught a new vegetation index with up-to-date image data will be produced. If this is overlaid over the base line vegetation index it allows identifying the parts of the vegetation cover which are already under stress although still with green leaves.

4   Activities

The activities described below only detail all necessary undertakings for the mapping of the natural resources. All subsequent analysis of combined information such as topography together with soil and land cover will be handled by a different report.

4.1   DTM Production

The Lands Department in Solomon Islands has already delivered the digital contour lines to the project. The files contain polylines in MapInfo format storing for every point of the line X, Y and Z coordinate. The information will be exported to Access to check the accuracy and from there exported to ERDAS image analysis software allowing to create a DTM out of the point information.

The DTM will be produced at SPC-SOPAC by project staff. The work is specialised and will not be needed again once the DTM is established.

ERDAS also allows producing out of the DTM slope maps stratifying the area into sub-areas of equal slope 0 to 10 degrees, 10 to 20 degrees, 20 to 30 degrees and above 30 degrees. The software also can produce an exposition map layer sub-dividing the area into areas of different exposition such as south, south-west, west, north-west, etc. This can be utilised to

assist identification of potential agriculture areas if vegetation is sensitive to sun and wind exposition.

4.2   Image Data Purchase and Pre-Processing

The image data purchase started already. THEOS satellite image data is ordered from Thailand.

4.2.1 Haze Removal

Haze removal semi-automatically marks all areas covered by clouds, haze and all areas without clouds and haze. Then the software adjusts the reflection values of areas covered by haze are so that they appear like without haze.

This step will be performed by the image pre-processing specialist, but the GIS officer from Solomon Islands will also learn to run this software application.

4.2.2 Atmospheric Correction

The images covering Solomon Islands are not recorded at the same day. The atmospheric correction reduces atmospheric differences between different images by taking all factors such as sensor characteristics, sun angle, season, etc. into account.

One factor taken into account by the atmospheric correction software is the relief and therefore the DTM is essential to create clear image data.

The atmospheric correction software is expensive and currently will not be implemented in a Pacific Island Country. SPC-SOPAC does this service centralised and therefore this step will not be trained.

4.2.3 Geometric Correction

The geometric correction is a process which adjusts the image data to the map projection and ensures that the image data fit exactly on the topographic maps. The Solomon Islands Lands Department provided the digital river system and the digital coast line. Both information layers will be utilised to identify reference points with known coordinates with which the software corrects the projection of the image data.

The geometric correction will be assisted by the GIS officers from Solomon Islands as geometric image correction is an important procedure required for many applications and it is essential to be trained.

4.2.4 Object Specific Contrast Enhancement

To enhance the contrast between a) agricultural crops, b) between forest types, c) between mangrove and forest the image data has to be manipulated in an interactive way. Test areas have to be selected with typical reflection to calibrate the change of the look up table until the test areas have sufficient contrast between each other. This has to be performed separate for the three major land cover types.

The GIS officers from Solomon Islands have to be trained in this process as they must be able to redo the contrast enhancement during the image interpretation in case the contrast is too low for parts of the image data.

4.2.5 GIS Backdrop Production

To be able to interpret the image and to delineate the different land cover types the image data has to be imported into MapInfo. This will be carried out separate for the different topographic map sheets. Therefor the image data has to be first mosaicked and then digitally cut to map sheet coverage.

Three different image data will be produced explained in the chapter Project Outputs: a) normal colour combination, b) false colour infrared and c) vegetation index layer.

The Solomon Islands GIS officers have to be trained in this process as this must be known for future image interpretation.

4.3   Image Interpretation and Delineation

Image interpretation and delineation is the main activity taken 95 % of the time allocated for land cover mapping. This activity is the main focus of the training. The activity is several steps:

As first step an interpreter loads all three backdrops for the particular map sheet to be interpreted allowing him to toggle between the image layers. Then he delineates the particular land cover by surrounding them on the screen with the cursor and labels the polygons created by this step.

If a map sheet is finished (e.g. forest interpretation) the polygons are handed over to the next interpreter who then will digitise the agriculture area. Whenever this interpreter has a different interpretation regarding the forest/agriculture boundary the change has to be recorded through a different label and discussed with the other interpreter.

Before a map sheet is completed it has to be checked with backdrops of all neighbouring map sheets to insure that the polygons join each other on the map sheet boundaries.

Finally, the polygons will be converted to raster data a step which requires ERDAS as image analysis software. By doing this possible overlap between two polygons will be eliminated.

All GIS officers have to be trained in all the steps mentioned in this chapter.

4.4   Overlay Analysis

Once all map sheets covering an island are imported to ERDAS they will be joined to one land cover layer for each island which is a semi-automatic process.

The political boundaries (province or district) will be digitised and also exported from MapInfo to ERDAS.

Then these two raster layers will be combined through an overlay process adding to each picture element indicating a land cover class the information to which political unit it belongs.

4.5   Production of Digital Maps

Again a semi-automatic process cuts the combined land cover layer map sheet files and exports these back to MapInfo.

In MapInfo the river system and road network will be overlaid and the map can be displayed or printed.

If necessary additional layers can be overlaid[3] such as village location, village names, river names, road names etc.

4.6 Area Database Establishment

For each map sheet ERDAS will run a statistic analysis counting the number of picture elements for each land cover class. These statistic files are imported to Access and can be combined to area per land cover type per island, province or other political units.

4.7 Creation of Customised GIS

MapInfo software allows through MapBasic to write code which creates shortcuts to run application similar but more sophisticated than macros in Microsoft Office environment. To display a map showing the land cover of Guadalcanal a user normally has to search for the folder containing the information then open the land cover, open the river system layer, open the road network layer, set the zoom factor and finally open and connect the tabular data. Having a customised GIS the user just clicks on "Guadalcanal" on the drop down menu and the map appears with the correct zoom factor.

All GIS officers will be trained in code writing whenever one a map sheet is ready and the customisation will grow permanently during the project running time.

5 Cost and Resources

The costs are currently calculated for the vegetation mapping at 1:50,000 scale only. There is a need to combine the land cover layer information with other information. This cannot be planned in detail yet and will be added later.

It is planned to bring one GIS officer each from Forestry Department, Environment Department, Lands Department and Agriculture Department for two months to SPC-Suva where they receive training and carry out part of the image pre-processing, image interpretation, digitising, conversion to raster layer, etc. as described above. After two months they go back to Honiara, install or upgrade the system in their offices carry out field checks and continue the interpretation and digitising work in link with the SPC-SOPAC office. During this time the next officer of each mentioned department will go to SPC-SOPAC and receive training and continue the work in Suva.

5.1 Hardware

The Agriculture Department is equipped with new hardware the Forestry Department, the Lands Department and the Department of Environment need new desktop computer where the cost for the Department of Environment will be covered by UNDP.

If maps are supposed to be printed in Honiara a plotter is available at Lands Department, where the software needs activation but there is no plotter investment necessary. There is also a plotter available at the Forestry Department, however, currently not in working condition.

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[3] In this case these layers have to be imported from the Solomon Islands Lands Department.

Hardware Item	Cost [FJ$]
Desktop computer Forestry Department	5,000
Desktop computer Environment Department	
Desktop computer Ministry of Planning	5,000
Desktop computer Lands Department	5,000
Sum hardware	15,000

Table 01: *Hardware cost for vegetation mapping*

It has to be discussed how far funds can be made available for purchasing GPS rover units to assist the field checks. This should be hand held units capable for differential correction, where a base station is not necessary as the Solomon Island Electricity Authority will re-establish their base station.

5.2   Software

The state of Solomon Islands has not signed the copy right law and it is possible to upgrade MapInfo and ERDAS software without major costs.

The Agriculture Department is equipped with a recent MapInfo license and only need image analysis software. The Department of Environment will be equipped by UNDP with a new MapInfo license and ERDAS license. ERDAS license is calculated with € 2,640 plus € 422 for one year maintenance.

Software License	Cost [FJ$]
ERDAS Essential Department of Agriculture	7,070
MapInfo / MapBasic Forestry Department	7,450
ERDAS Forestry Department	7,070
MapInfo / MapBasic Lands Department	7,450
ERDAS Lands Department	7,070
Sum software	36,110

Table 02: *Software cost for vegetation mapping*

5.3   Flights

The ticket cost contains the ticket Honiara Nadi and back as well as the flight Nadi - Suva and back.

Tickets	Cost/Ticket	No Tickets	Sum
2 x Agriculture Department Honiara-Suva-Honiara	2,800	2	5,600
2 x Forestry Department Honiara-Suva-Honiara	2,800	2	5,600
2 x Environment Department Honiara-Suva-Honiara	2,800	2	5,600
2 x Lands Department Honiara-Suva-Honiara	2,800	2	5,600
Sum ticket costs			22,400

Table 03: *Ticket cost for vegetation mapping*

The ticket costs for the GIS officers of the Forestry Department will be covered by JICA. The ticket for the GIS officers of the Agriculture Department will be possibly covered by GIZ and IUCN will cover the tickets for GIS officers mapping the mangroves.

5.4 DSA

Item	DSA/Day [FJ$]	Days	Total [FJ$]
2 x 2 months DSA Suva for GIS officers Lands Department (120 days)	137.20	120	16,464
2 x 2 months DSA Suva for GIS officers Environment Department (120 days)	137.20	120	16,464
2 x 2 months DSA Suva for GIS officers Forestry Department (120 days)	137.20	120	16,464
2 x 2 months DSA Suva for GIS officers Agriculture Department (120 days)	137.20	120	16,464
Sum			65,856

Table 04: *DSA cost for vegetation mapping. The rate is calculated as SPC training rate which is 70% of DSA Suva (FJ$ 196)*

The DSA costs for the GIS officers of the Forestry Department will be covered by JICA. The DSA for the GIS officers of the Agriculture Department will be possibly covered by GIZ and IUCN will cover the DSA costs for the GIS officers carrying out mangrove mapping.

6 Time Table

The time table cannot be absolutely followed as shown below due to arrival of image data. Whenever new image data comes in the pre-processing has to be performed, however, the image data will not arrive at one point in time.

The same applies to the overlay analysis, production of digital maps etc. Whenever the interpretation is completed for a map sheet these steps will be carried out.

Activity	FEB	MAR	APR	MAY	JUN
DTM production	■				
Image data pre-processing	■	■			
Image data interpretation		■	■	■	■
Overlay analysis			■	■	■
Production of digital maps			■	■	■
Area database establishment			■	■	■
Establishment of customised GIS		■	■	■	■

Table 05: *Time planning for mapping activities*

7 Appendix 1 UNDP / MECDM Inception Workshop

The workshop was held in the Mendana Hotel and partners important for the mapping task were present such as:

- Ministry of Environment, Climate Change, Disaster Management and Meteorology
- Ministry of Development Planning & Aid Coordination
- Ministry of Forests
- Ministry of Lands, Housing & Survey
- Ministry of Agriculture and Livestock
- UNDP
- IUCN

The three short power-point presentations provided by SPC-SOPAC conveyed the following messages:

- The mapping task of the USAID funded food security project in terms of countries covered, funds available for image data, planned way of mapping and capacity building;
- The nature of a digital maps within a GIS, requirements and potential;
- The need to utilise the tools GIS and remote sensing at the end user level not only in a centralised system;
- The current setup of land cover mapping at SOPAC with other member countries such as Fiji and Kiribati having parallel mapping activities at SOPAC and in the countries;
- SPC-SOPAC's potential for data backup on central server and the utilisation of member countries;
- The need of close coordination between the stakeholders Agriculture, Forestry, Environment and Lands Department;
- The difference between 1:10,000 scale mapping and 1:50,000 scale mapping;
- The new way of image data pre-processing including atmospheric correction and advanced geometric correction, where digital contour lines, digital coast line and the digital river system is required at SPC-SOPAC;

During the discussion the auditorium agreed to follow the example Fiji to map first at 1:50,000 scale level and create the mapping capacity before mapping at 1:10,000 scale. There was also an agreement that the current mapping has to lead into a monitoring at a later stage starting with forest change detection for REDD preparedness.

8 Appendix 2 Meetings in Honiara

The Ministry of Development Planning & Aid Coordination arranged through Daniel B. Rove the meetings in Forestry, Environment, Agriculture and Lands Department.

8.1 Ministry of Development Planning & Aid Coordination

The Ministry was visited on 17th January in the afternoon (15:30). Following persons participated in the discussion:

- Daniel B. Rove (Director Social Sector Division)
- Susan Sulu (Director Aid Coordination Division)
- Samuel Wara
- Wolf Forstreuter (SPC-SOPAC)

Daniel explained that the ministry wants to have GIS as tool adding the spatial component to data. He also explained that the mandate of the ministry is to ensure that information exchange takes place and that the different GIS sections cooperate.

Daniel also explained the importance to have a GIS display in their Economic and Productive Division which provides the spatial and tabular data of Forestry, Agriculture and Environment. There is currently no need to train GIS officers in data capture and analysis but it is important to display for planning purpose.

Daniel stated that he will arrange meetings with Agriculture, Forestry, Environment and Lands Department and that he wants to participate to get an overview of available capacity in Solomon Islands.

The Development Assistance Database was demonstrated. This database contains all projects donated to Solomon Islands, the funding and the location. The database has a GIS component.

8.2 UNDP

Discussion with UNDP took place in the Mendana Hotel on 17th January (14:00). Following persons participated in the discussion:

- Valentine Thurairajah (Project Manager – SEMRICC[4], UNDP)
- Yoko Ebisawa (SEMRICC GIS Officer, UNDP)
- Duta Bera Kaushiona (SEMRICC Environment Education Officer)
- Reiko Iitsuka (Technical Analyst, Small Grants Project)
- Alex Makini - Course Co-ordinator - Certificate (YEP) -
- Franck Franck Wickham (SEMRICC Inception Workshop facilitator)
- Loraine Bambu (Project Assistant)
- Wolf Forstreuter (SPC-SOPAC)

Valentine explained the three main areas of GIS involvement within his project responsibilities:

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[4] SEMRICC = Strengthening Environment Management and Reducing the Impacts of Climate Change

1) Mapping of protected areas,
2) Mapping of vulnerability of urban communities regarding any disaster supported by UN-Habitat
3) GIS training laboratory to be established at SICHE, where a climate change specialisation diploma course is based already. SICHE with the GIS course will develop towards a Solomon Islands national university.

UNDP will advertise an own GIS post. Funds for GIS and resource economic are already available at UNDP.

Mangrove mapping was not mentioned as special task of the Department of Environment. Also land cover mapping for the UNDP SLM project was not mentioned. For this project UNDP requested SOPAC assistance in early 2011.

Wolf explained the purpose of the current mapping task and he explained the main messages of his short presentations during the inception workshop of MECDM and UNDP on 18th January.

8.3 Department of Agriculture Planning & Land Use
The meeting with the Department of Agriculture Planning & Land Use took place on the 19th of January (09:00). Following persons participated:

- Jimi Saeka (Undersecretary Technical)
- Michael Ho'ota
- William Joerg Okekini (Deputy Director Agricultural Projects)
- Daniel B. Rove (Director Social Sector Division, Ministry of Development Planning & Aid Coordination)
- Barnabas Bayo (Ministry of Development Planning & Aid Coordination)
- Wolf Forstreuter (SPC-SOPAC)

William explained the interest in agricultural mapping, where image data is the missing element. A GIS project (SIIARD) started already in 2010 for Agriculture Department and will re-start now. A GIS project officer (Nigel Tutuo) is recruited and will start beginning of March. He has GIS background working in an infrastructure company. Two new desktop computers are already in place for GIS.

The Agriculture Department is interested to get two officers with good agriculture field background trained in the process of mapping together with SPC-SOPAC.

The point of contact regarding the mapping activities will be William.

Wolf explained that the funding for agriculture officers to come to Fiji is not secured yet. Wolf also detailed the need to scan and digitise the soil maps of Solomon Islands, which is different from the geological map which is already scanned. The Department will search for the maps and deliver them to SPC-SOPAC.

8.4 Forestry Department
The meeting with the Department of Forestry took place on the 19th of January (10:30). Following persons participated:

- Terence Titiulu (Acting Conservator of Forests ?)

- Irokete Wanefaia (Forestry GIS Officer)
- Daniel B. Rove (Director Social Sector Division, Ministry of Development Planning & Aid Coordination)
- Barnabas Bayo (Ministry of Development Planning & Aid Coordination)
- Wolf Forstreuter (SPC-SOPAC)

The Forestry Department is interested to participate in the national vegetation mapping. Irokete will put the mapping activity into the work plan and waits for positive signal from SOPAC to start the mapping.

Logged over areas are currently analysed in Australia through an AusAID funded project with team leader Andrewartha. The Forestry Department only receives the report and not the image data. The last image data covering Solomon Islands are Landsat TM 7 data which were delivered by SOPAC. Stratification of the forest cover into logged and unlogged forest should be investigated.

The Forestry Department has an operational GIS system. However, software and hardware update would be suitable. Even a plotter is available but currently not operational.

The Forestry GIS contains a very detailed forest type map layer derived from aerial photo analysis carried out end of the eighties. This layer could be utilised to calibrate the new image data.

Wolf mentioned that technically the rate of deforestation could be established if this three forest layers mentioned above would be overlaid which would contribute to REDD readiness. Currently the simple mapping with new data for food security is the target.

The ticket and DSA for foresters coming to SPC-SOPAC would be covered by JICA.

8.5 Lands Department

The meeting with the Department of Forestry took place on the 20th of January (10:00). Following persons participated:

- Jackson Vaikota (Surveyor General, Lands Department)
- Genesis E. Kofana (Director Land Policy and Research, Lands Department)
- Robert Misimaka (National Geographic Information Centre, Lands Department)
- Peter Fairanisa (National Geographic Information Centre, Lands Department)
- Barnabas Bayo (Ministry of Development Planning & Aid Coordination)
- Wolf Forstreuter (SPC-SOPAC)

Wolf explained the mapping task and stated that there is currently no funding to pay for ticket and DSA for two staff from Lands Department but he will look into possibilities to find resources.

Wolf explained the need to have the contour lines, river system and coastline for enhanced image pre-processing. The Surveyor General Jackson Vaikota promised to deliver these digital data sets and they arrived the same day.

There are apparently 132 topographic map sheets at 1:50,000 scale. The projection is Lat Long WGS84 and not a local projection.

GIS software (MapInfo) is available, however, outdated (Version 8.5).

The point of contact for the agriculture GIS will be Genesis.

8.6   Solomon Islands Electricity Authority

The meeting with the Solomon Islands Electricity Authority (SIEA) took place on the 20th of January (15:00). Following persons participated:

- Norman Nicholls (General Manager)
- Obed Russell Senipitu (GIS Officer)
- Rollins Suluia (Distribution Engineer)
- Gordon Denty (ICT Manager)
- Wolf Forstreuter (SPC-SOPAC)

Robinson Wood who had built the SIEA GIS since 1998 had to leave and at this time there was no deputy GIS officer working with him. It was assumed that Robinson took all data with him on his laptop and the main GIS computer crashed. The crashed computer was the GPS base station which was installed in 1998 and exceeded about three times its life expectance of about 5 years. This computer has nothing to do with storage of GIS data and Wolf found the desktop and the GIS data with last update just before Robinson left.

SIEA will invest in new MapInfo license, new computer hardware and new GPC base station.

SPC-SOPAC will send Edwin Liava'a to inventory data available and data needs and at the same time capacity available and training needs before setting up a training program.

SIEA will immediately backup the data found on the desktop and in future there will be a data backup on SPC-SOPAC server.

8.7   Department of Environment

The meeting in the Department of Environment took place on the 23rd of January (15:00). Following persons participated:

- Edward Danitofea (Department of Environment)
- Barnabas Bayo (Ministry of Development Planning & Aid Coordination)
- Wolf Forstreuter (SPC-SOPAC)

Since three years the establishment of a GIS unit is in the plan but it is still not realised. Deputy Director Tia Masolo and Principle Conservation Officer Jointly Sisiolo received GIS in James Cook University in Australia in 2010, but currently there is nobody from the staff who would have the capacity to map mangroves.

UNDP will establish a GIS unit at the Department of Environment, but the main purpose will be to delineate protected areas.

8.8   Meeting EU-FACT Project

The meeting with the EU-FACT project took place on the 23rd of January (13:00). Following persons participated:

- Gideon Bouro (Trade Facilitation Assistant, EU-FACT project, SPC)
- Wolf Forstreuter (SPC-SOPAC)

To support the marketing of plantation timber it is essential to know the location and size of established forest plantations, which are since ten years mainly teak plantations. These plantations are established by farmers, church organisations and NGOs. The size vary from about 1 hectare to 16,000 hectares (Kolobangara) and 13,000 hectares (Viru) in New Georgia. Some plantations have already an age of more than 25 years e.g. in Malaita.

Wolf stated that the current satellite image data purchased for the mapping will make the detection and mapping of small plantations difficult. Size of one hectare and smaller requires mapping at 1:10,000 scale and corresponding very high resolution image data. The large plantations will be mapped from the image data and GPS mapping would allow delineating the small plantations in an easy and appropriate way. However, GPS mapping should be performed with differential GPS provided the accuracy required for 1:10,000 scale.

Gideon stated that training is required to allow forest officers to carry out the mapping.

The project has a Garmin GPS 72H. If plantations will be mapped, a) this unit has to be replaced with a GPS allowing differential correction, b) training in GPS mapping has to be provided c) staff time has to be allocated and d) resources have to be allocated to go to the islands and carry out the mapping. In general it is possible to include the plantation into the forest layer.

8.9 Meeting with Ministry of Development and Planning

The meeting with the MDPAC took place on the 23rd of January (17:30). Following persons participated:

- Daniel B. Rove (Director Social Sector Division, Ministry of Development Planning & Aid Coordination)
- Barnabas Bayo (Ministry of Development Planning & Aid Coordination)
- Wolf Forstreuter (SPC-SOPAC)

Following points were discussed and agreed:

- Mapping starts at 1:50,000 scale;
- Training on the job is provided by SPC-SOPAC for GIS officers from Solomon Islands at SOPAC who will stay for two months go back to Honiara and continue mapping including necessary field work, while they are replaced by a second GIS officer from the same department who receives training on-the-job at SOPAC.
- SPC-SOPAC secures funding for ticket and DSA through partner organisations such as JICA, IUCN and GIZ;
- SPC-SOPAC is utilised as data backup to be able to re-import data in case data is lost in one of the mapping units.
- Mangrove mapping will be carried out by Lands Department until the GIS system at the Department of Environment is established through funding of UNDP;
- The GIS at SIEA will be re-established by SOPAC outside of the food security project including the setup of the GPS base station which also will support the vegetation mapping.

8.10 Discussion with SPC Honiara Office

The meeting took place on the 24th of January (09:30). Following persons participated:

- Mia Rimon (SPC Coordinator Honiara)
- Robinson T. Wood (former GIS officer at SIEA)
- Wolf Forstreuter (SPC-SOPAC)

Following issues were discussed:

- Robinson has knowledge about the history of GIS development in Solomon Islands and knows where important spatial data is stored. He would be available for training and any other assistance.
- The positive reaction towards GIS development of all visited government institutions should be followed and mapping activities should start as soon as possible.
- A common platform should be available for the outside world or new GIS establishments, where the MapServer established under the EU-SOPAC project could be re-activated.