I. Introduction

The acceptance of *Operation Wallacea Trust* (OWT) proposal and partners (*Yascita* and *LePMIL*) to conduct training and awareness in SE Sulawesi under Green-Kecamatan Development Program (G-KDP) was given by the CSO (civil service organization/NGO) selection committee (GOI, World Bank and SOFEI) on May 31, 2008. After following process of proposal improvements through various discussions with the Bank staff in the World Bank Office Jakarta/WBOJ (especially with *Ibu Vivianti Rambe*, *Ibu Novira K. Asra*, *Ibu Bolorma* and *Pak Rizal Rivai*) on the detailed of proposed activities and milestones, budgetary allocation, and type of contractual agreement between OWT and CSOs partner.

The final proposal was fully accepted by the Bank on July 30, 2007. For administration reasons, OWT had to submitted the following documents: *(1)* Person authorized to sign grant agreement; *(2)* OWT vendor number; *(3)* Standard Operating Procedure for Finance Management and General Administration; *(4)* Latest Finance Audit Report; *(5)* Curriculum vitae of all dedicated staff; *(6)* Single source selection for *Yascita* and *LePMIL*.

Due to considerable time needed in drafting grant agreement, especially awaiting grant agreement template between the Bank and Wildlife Conservation Society to conduct training and awareness under G-KDP in North Sulawesi, the Grant Agreement for SE Sulawesi (‘*Trust Fund for the Kecamatan Development Program in Sulawesi-Environmental Training and Awareness Project/Grant Number TF 090977’)* has just signed by the Bank Country Director for Indonesia, East Asia and Pacific Region (*Joachim von Amsberg*) on November 7, 2007 and counter signed by OWT Director (*Edi Purwanto*) on November 9, 2007.

As follow-up of the signing agreement, since mid November 2007, OWT has conducted project preparation, developed contractual agreements with *Yascita* and *LePMIL* (local CSOs subcontracted by OWT to conduct environmental awareness in Kolaka and Muna District, respectively) socialization, coordination with (G)-KDP actors and stakeholders to make G-KDP in SE Sulawesi up and running soon, which will enable the project to embark and work in closed cooperation with regular KDP process in 2008 fiscal year.

The inception report describes efforts conducted by OWT to start up the project, discuss progress activities conducted during mid November 2007 till the end of January 2008 and planned activities 2007/2008 (see *Annex A, B and C)* and in the coming two months (February and March 2008). This report only cover technical part of the project, the financial aspect will be given in separated report. The next report (First Quarterly Progress and Implementation Plan Report) will be submitted the end of April 2008.

II. Project Management: Efforts to start up the project

A. Defined Centre Management Office

To administer environmental training and awareness, we originally planned to open new office which specially dedicated for G-KDP in Kendari. However, after realizing that the position of Bau-Bau Town in Buton (where the current OWT office is currently located) is about in the centre of 6 kecamatans (out of 9 kecamatans) that participate in the G-KDP (Pasarwajo, Sampolawa in Buton Island, Mawasangka, Tongkuno, Lawa and Napabalano in Muna Island), then for the sake of efficiency, we decided to keep the centre office in Bau-Bau.

The advantages of having office in Kendari City is near with KDP actors at provincial level, close to *Yascita* and *LePMIL* and also exposing OWT at province level. Unfortunately, Kendari is far from nine kecamatans where G-KDP is implemented (Kolaka, Muna and Buton). On the other hand, establish new office will absorb considerable resources, while moving staff from Bau-Bau to Kendari are not simple. Moreover, by keeping office in Bau-Bau, the office administration can start immediately and the operational cost can be shared with Lambusango Forest Conservation Project which will run until December 31, 2008.

Given the centre management office in Bau-Bau, regular monthly meeting with CSOs partner will be conducted in Kendari and located at Yascita office. Efforts have been made to maintain intensive communication with all partners at province level.

B. Arranged first grant disbursement

On November 22, 2007, we forecasted project expenditures for the coming 6 months (1 January – 30 June 2008) and the associated procurement plan. The total cash forecast for the first semester of 2008 was USD 117,750, which is composed of USD 69,050 (for the first three months/January-March 2008) and USD 48,700 (for the second three months/April-June 2008).

After opening special account in US Dollar in BNI Bank Bau-Bau, Buton (November 26, 2007), first grant disbursement application (for the coming three months/January-March 2008) was submitted to WBOJ (*Ibu Noviarisa Syailendra*) on November 27, 2008 with proposed fund amount of USD 69,050. The grant (USD 69,037.50) was received at project site on December 10, 2008.

On December 14, 2007, we opened IDR account in BNI Bank Bau-Bau; this account is used for administering G-KDP fund only.

C. Developed Annual Workplan

In the beginning of December 2007, we developed detail workplan for year 2008; this is a revised version of prior workplan as appeared in *Annex D* of the technical proposal submitted on July 30, 2007. It is composed of three documents in spreadsheet forms, i.e. *(a)* Project Management; *(b)* Training and *(c)* Awareness. See ***Annex A, B* and *C***.

Some planned activities in the Project Management are worth to mention:

a) Quarterly Progress and Implementation Plan Report will be submitted at the second week of April, July and October 2008.

b) Annual Report will be submitted at the forth week of December 2008.

c) Financial Management Report (FMR) will be submitted at the second week of April, July and October 2008.

d) Financial supervision/audit to CSOs partner (Yascita and LePMIL) will be conducted on the third week of April, July, October and December 2008.

e) The first fund disbursement to CSOs partner (Yascita and LePMIL) have been conducted on the first week of January 2008, the next disbursement will be conducted on the forth week of April, July, October and December 2008.

D. Developed Contractual Agreement with Yascita and LePMIL

On the beginning of December 2007, we drafted contractual agreement with Yascita and LePMIL as a basis for working cooperation in awareness activities of three kecamatans (Baula, Watubangga and Ladongi) in Kolaka (Yascita) and three kecamatans (Tongkuno, Lawa and Napabalano) in Muna (LePMIL). The duration of sub-contract is 12 months (2 January – 31 December 2008) with possible extension.

To negotiate the sub-contracts draft with those CSOs, we organized meeting with Yascita on December 20, 2007 and with LePMIL on December 21, 2007. Both meetings took place in the offices of those CSOs in Kendari. In the meeting, we discussed the progress on G-KDP, and then discussed verse by verse of the sub-contract draft, as well as guideline for programmatic reporting and financial administration. After conducted some improvements/adaptations, both contracts were signed on December 22, 2007.

Below are the summary of tasks and responsibilities of OWT and Yascita/LePMIL. The original contract is in Indonesian language.

Tasks and responsibilities of OWT:

a) Allocate and disburse environmental awareness fund.
b) Provide direction on the strategy of program implementation.
c) Assess feasibility of workplan and cash forecast
d) Conduct monitoring and evaluation of program implementation, used fund and financial administration.
e) Writing programmatic and financial report to World Bank.

Tasks and responsibilities of Yascita and LePMIL:

a) Have a strong commitment to perform the job on highest standard.
b) Hire qualified staff in sufficient numbers to enable to implement the tasks on highest standard.
c) Comply with reporting system and administration procedure as defined by the Bank and OWT.

d) Collect baseline data using KAP Survey, supported with field investigation.
e) Identify environmental problems (both cause and effects) on all G-KDP villages participant and the surroundings, and formulate the solutions.
f) Identify traning and awareness needs assesment in village and kecamatan level.
g) Deliver training and awareness to local community and KDP actors at village and kecamatan level to drive local community interest on environmental investment.
h) Provide technical and assistant to Kecamatan facilitators and other KDP actors.
i) Provide indiscrete facilitation to local community in line with KDP phases, i.e. socialization, planning, implementation and maintenance.

E. Developed Guidelines on Reporting for CSOs partner

We developed two guidelines as guidance for *Yascita* and *LePMIL* to: *(a)* manage, administer and report the used of the grant (*Pedoman Administrasi Keuangan Untuk LSM Mitra/*'Guidance on Financial Administration for CSOs partner'); *(b)* write Quarterly Progress and Implementation Plan Report (*Pedoman Penyusunan Laporan Kemajuan dan Rencana Kerja Triwulan Untuk LSM Mitra/*'Guidance to write Quarterly Progress and Implementation Plan Report for CSOs partner. In addition, we also developed 'Application Form for Fund Widrawal'. Those three documents were attached on the contractual agreement and become an integral part of the agreement.

The summary of guideline for financial administration:

a) CSOs partner should open special account dedicated to administer the grant.

b) CSOs partner should submit monthly and quarterly financial report to OWT. Monthly report should be submited at the latest 5 working days after the end of the month, while quarterly report should be submited at the latest 7 working days after quarter ending. Relevant Bank Statement should be attached on those reports.

c) Project expenditures should be classified into three categories, i.e. *(a)* wages; *(b)* workshop and training and *(c)* Operational cost. Maximum grant for every CSO in the year 2008 is USD 36,000.

d) Fund disbursment will be conducted into five terms; *(a)* First disbursment (maximum USD 9,000) will be conducted after contractual agreement signed and proposed fund agreed by OWT; *(b)* Second disbursment (maximum USD 9,000) will be conducted after CSOs submit programatic report and financial report which are agreed by OWT, the disbursment will be conducted at the end of April 2008; *(c)* Third disbursment (maximum USD 9,000) will be conducted after CSOs submit programatic report and financial report which are agreed by OWT, the disbursment will be conducted at the end of July 2008; *(d)* Forth disbursment (maximum USD 4,500) will be conducted after CSOs submit programatic report and financial report which are agreed by OWT, the disbursment will be conducted at the end of October 2008; *(e)* Fifth disbursment (maximum USD 4,500) will be conducted after CSOs submit programatic report and financial report which are agreed by OWT, the disbursment will be conducted at the end of December 2008;

e) OWT has an access to all financial files to enable to conduct financial audit.

The summary of the guideline for Quarterly Progress and Implementation Plan Report:

a) CSOs partner should submit Quarterly Progress and Implementation Plan Report (QPIPR) at the latest 5 working days after quarter ending and Annual Report at the latest 10 working days after year end of 2008.

b) QPIPRs should be written in Indonesian in consice manner. Relevant soft copy of documentations and environmental awareness materials should be attached on those reports.

c) Outline of QPIPR is composed of : *(a)* Report Summary; *(b)* Workplan for the past three months; *(c)* Activities completed and in progress during three months on basis of predetermined workplan; *(d)* Activities completed and in progress outside predetermided workplan; *(e)* Workplan for the coming three months; *(f)* Conclusions.

d) Outline Annual Report: *(a)* Activities completed and in progress during the fourth quarter; *(b)* Summary of completed activities during 12 months; *(c)* Lessoned learned during 12 months; *(d)* Conclusions and Recommendations.

III. Environmental Overview and Implication for training and awareness needs

During mid to end of December 2007, Coordinator of Environment Training and Awareness visited KDP actors at districts, kecamatans and villages of G-KDP participants in SE Sulawesi. The objectives of the visit were to: *(a)* introduce tasks and responsibilities of OWT and CSOs partner (*Yascita* and *LePMIL*) on environment training and awareness in G-KDP; *(b)* introduce the concept of G-KDP; *(c)* conduct rapid environmental assessment on each kecamatan.

This chapter discusses the findings of environmental assessment and literature study. Causes and affects of environmental problems and its possible solutions in each kecamatan are discussed and the implication for training and awareness needs are then proposed. Special and common environmental issues which need highlighs and further elaboration are given in the boxes.

The list of proposed training and awareness materials development is summarized in *Annex D.* It is worth to mention that the list should be considered as prelimary. As this will be further enriched with the results of KAP survey. However, while waiting the results of the survey, we will use the findings as a guideline to develop training and awareness materials during February and March 2008.

A. Kecamatan Baula, Kabupaten Kolaka (10 villages)

The area of the sub-district covers upland and lowland areas. The lithology of the area is metamorphic. The main source of income is agriculture, mainly *sawah* (irrigated agriculture land) and cocoa plantation.

About 40 % of the land has been allocated by the government to *PT Inco*'s, a nickel[1] mining concessionaire, in which exploitation activities will have about to start. The high nickel content of land outside concession area of *PT Inco* and *PT Aneka Tambang* have been attracted investors to exploit stones (gravels and boulders) from community land. The stones are quarried and transported using dump truck to temporary storage near coastal area. After selection process, stones having nickel content equal or more than 5 % are directly shipped to China.

These activities have affected to severe land (and also road) degradation in both upland and lowland areas and led to high (mega) rivers siltation (indicated by red colour of the river water), *sawah*, coastal and marine area sedimentation. As results, flood hazards are high and the lowland area prone of flooding which have degrade *sawah*.

Root of environment problems: *(a)* Forest degradation in hilly and mountainous terrain; *(b)* Intensive quarrying on hilly and mountainous land.

Environmental impacts: *(a)* High flood hazard; *(b)* Lack of drinking water; *(c)* mega river siltation; *(d)* coastal and marine sedimentation; *(e)* degraded seagrass meadow and coral reef.

[1] Nickel ores are derived from weathering of ultrabasic rocks.

Other environmental problems: Poor sanitation and drainage on settlement area.

Possible solutions: *(a)* reforestation of degraded forest on hilly and mountainous terrain; *(b)* improved standard operating procedure on nickel quarrying by applying proper soil conservation measures; *(c)* improved access to drinking water.

Proposed Awareness materials: *(a)* watershed management; *(b)* building community commitment to reduce impacts on stones quarrying; *(c)* development of village trees nursery; *(d)* appropriate technology to improve sanitation.

Proposed Training Workshop on Enforcing Soil Conservation Measures in Nickels Quarrying in Kolaka District. The workshop will involve the management of *PT. Inco*, *PT. Aneka Tambang*, investors on nickel quarrying, Kolaka Mining Service, Provincial Mining Service, BAPEDALDA (Agency for Environmental Impacts Control), BAPPEDA (Regional Planning Agency), BPDAS/Watershed Management Centre (*Balai Pengelolaan DAS Sampara*), Kecamatan Baula, Kecamatan Pomalaa, NGOs, universities, key elders at village levels.

PT Inco is a joint venture between Indonesian and Canadian company. The company has exploited several nickel mining deposits in Sulawesi. In Indonesia, nickels deposits occur in Sulawesi and Halmahera Islands. At present, the largest INCO's nickel ores mining concession is around Soroako and Lake Matano (South Sulawesi). INCO quarries soil and stones about three meters depth, after quarrying, the (top) soils are returned and land covers are restored through regreening. Nickels mineral separation done by heating, this is considered to be more environmentally friendly compared with chemical process. Indonesian nickels are mostly exported to Japan, where the country conduct nickels purification by separating *Co* (cobalt) from the nickel mineral. *Cobalt* is known to have much higher price than nickel itself.

Box 1. Cocoa Plantation in Kolaka

Cocoa is the most important industrial crop in Kolaka and North Kolaka Districts. In 1970s, cocoa seeds were introduced by Indonesian migrant labors that brought cocoa seedlings from East Malaysia. After realizing that cocoa grows well in Kolaka, and there had been strong industrial demand for cocoa beans, farmers started growing cocoa extensively in Kolaka. Each farmer in Kolaka have an average of 2 ha cocoa, about 49.000 ha cocoa plantation in Kolaka (including North Kolaka District), the cocoa annual production is 55,000 ton.

In 1980s, Governor of SE Sulawesi, *Pak Alala*, has set out province wide program named '*Program Gerakan Desa Makmur Merata' (/Province Program for welfare villages /Gersamata).* This program conducted regreening movement on critical land using horticulture and industrial crops, such as *rambutan (Nephelium sp)*, cocoa, clove, cashews, coffee etc. Province Government distributed cocoa seeds generously to farmers and provided technical assistances by training Kecamatan agriculture extension workers to supervise planting and tending of cocoa plantation development.

There are numbers of reasons why farmers plant cocoa: *(1)* Cocoa starts fruiting after two years; *(2)* Harvest could be done the whole year, maximum during rainy season (November-July, ca.78 kg/ha/month). Price ranged between Rp. 7000 – 10.000 (water content 7 percent); *(3)* Plant maintenance is simple.

The gold era of cocoa occurred during economic recession (1998 – 1999), where farmer

received windfall profit of rising cocoa price until five times. This has further driven the large conversion of rice culture into cocoa plantation. Until year 2000, the post harvest processing are mainly peeling and sun drying. Little farmers conduct cocoa fermentation, since the price different is not significant.

In response to the outbreak of fruit borer pest during the last five years, Agriculture Extension Agency in cooperation with some local NGOs has campaigned to eradicate the pest, through thinning and improving environment sanitation.

B. Kecamatan Watubangga, Kabupaten Kolaka (18 villages)

The kecamatan was established after the development of settlement areas of Javanese and Balinese during 1990s under initiative of government transmigration program. The lithology of the area is upper tertiary marine sediments. The main source of income is agriculture, i.e. sawah, *tegalan* (rainfed agriculture) and cocoa plantation. Farmers in this kecamatan have relatively low income for SE Sulawesi standard, as their land are marginal (unfertile soil), agriculture land produced good yield only during the first five years, and then continuously declining, while job opportunities for non-agricultural work are limited.

Poverty indicators in this kecamatan can be clearly seen from the houses (most of the houses still maintain its original transmigration house as provided by the government nearly 20 years ago), vehicles (limited motor bike), televisions (only one out of 20 household has television), the quiet market, hardly any *warung* (food stall) and limited shops. The slow economic development is mainly caused by poor land productivity and lack of opportunities for profitable commercial crop cultivation.

Since 2006, an investor names *Pak Sitorus* has developed about 12,000 ha oil palm plantation (*Eleais quinensis Jack*) by converting natural forest and rainfed agriculture in the upland area. In fact, the investor has helped to solve unemployment and underemployment problems in the kecamatan. About 250 households now become permanent and seasonal labours in the plantation company.

On the other hand, rapid land cover changes (land clearing) during the establishment of oil palm plantation, and the absence of good land husbandry (proper soil and water conservation) after forest conversion has affected to the flash flood events during the peak of wet season in 2007 (February 2007). This has degraded sawah, inundated arable land and settlement area. About 40 % of the kecamatan has been environmentally affected by the establishment of oil palm plantation.

The negative affects (high excess runoff/overland flow) are expected to be declined in line with the growth of canopy (crown) of the oil palm trees and the development of undergrowth, however the evapotranspiration (water consumption) are expected to be higher in line with the full development of oil palm trees. Each oil palm trees consume 20 – 30 litres water per day; as such the establishment of oil palm plantation potentially affect to ground water shortage.

Villagers living in coastal areas (3 villages) have developed brackish-water fish and prawn ponds (*tambak*), supported by hatcheries of the tiger prawn *Penaeus monodon*. This species needs only about 3-5 weeks after being introduced into the tambak to grown from

the post-larval stage, and under intensive management a yield of 2,000 kg/ha/yr is possible (*Eko Purwanto*, press com, *Villaluz et. al. 1977* in *Whitten et. al., 2002*).

Environmentally speaking; the quality of current brackish-water fish ponds is still poor. There is an urgent need to grow mangrove on the embankment of the ponds and also leave a small island with a few mangrove trees in the middle (largely known as *silvo-fishery* system). The mangrove will provide shade, some protection from erosion, introduce organic matter into the ponds in the form of leaves, twigs, etc. and their wood can be used as fuel.

Root of environment problem: Rapid conversion of forest and agriculture land into oil palm plantation.

Environmental impacts: *(a)* High flood hazard; *(b)* Lack of drinking water; *(c)* Lack of irrigation water.

Other environmental problems: *(a)* Poor sanitation and drainage on settlement area; *(b)* degraded mangrove; *(c)* poor brackish-water ponds.

Possible solutions: *(a)* reforestation on degraded land; *(b)* soil conservation on oil palm plantation; *(c)* improved access to drinking water; *(d)* develop silvo-fishery on brackish-water ponds.

Proposed Awareness materials: *(a)* watershed management; *(b)* building commitment with Oil Palm Company to enforce soil and water conservation measures; *(c)* development of village trees nursery; *(d)* Silvo-fishery on brackish-water ponds.

Proposed Training Workshop on Controlling the Environmental Affects of Oil Palm Plantation in Kolaka District. The workshop will involve *Pak Sitorus*'s Oil Palm Company, other Oil Palm Companies in Kolaka District, Kolaka Plantation Service (*Dinas Perkebunan*), Provincial Plantation Service, BAPPEDA, BAPEDALDA, BPDAS, Kecamatan Watubangga and other kecamatan having similar problems in Kolaka District, NGOs, universities, key elders at village levels.

C. Kecamatan Ladongi, Kabupaten Kolaka (17 villages)

The whole area of Kecamatan Ladongi is located in the upland area. The kecamatan was also dominated by Javanese and Balinese migrants relocated by government under transmigration program during the end of 1980s.

In contrast with Kecamatan Watubangga, Ladongi is a successful transmigration areas, the area is dominated by deep fertile young volcanic soil, while water resources are abundance. All sawah are under established semi-technical irrigation system with mechanized cultivation, enabling to grow rice two times a year with average production of 6 tons/ha. The price of sawah land per ha is now about USD 2,500/ha. Kecamatan Ladongi is a large net exporter of rice to neighboruring regions, while the rice shells are sold to Surabaya. Community also raise cattle (cows and goats), it is not unsual for a single farmer to possess as many as 20 animals, but not all hoseholds seemed to have owned cattle. Apart from rice, cocoa and coffee also widely planted, farmers also grows various fruits, such as oranges, manggos and rambutans.

Root of environmental problems:

(a) Successful agriculture development in Kecamatan Ladongi has affected to land hunger problems. As a result, the Aopa Swamp (the northern part of the *Rawa Aopa-Watumohai National Park*) has been under serious pressure. Efforts have been made by local community to drain the Aopa Swamp using excavator, and converted into sawah land and cocoa plantation.

Box 2. The Aopa Swamp

The Aopa Swamp is located about 100 m above sea level. It is the only major area of peat swamp ecosystem in Sulawesi. It is all that remains of an ancient lake which is reaching the final stages of its life as an aquatic ecosystem. In contrast to the extensive ombrogenous peat swamps which arose because of the inability of decomposer organisms to break down organic material in saline conditions, the Aopa peat was formed because of the continuous, water-logged conditions which are unfavorable to decomposer organisms. A contour map show how the swamp is almost entirely surrounded by high ground (Fig. 1).

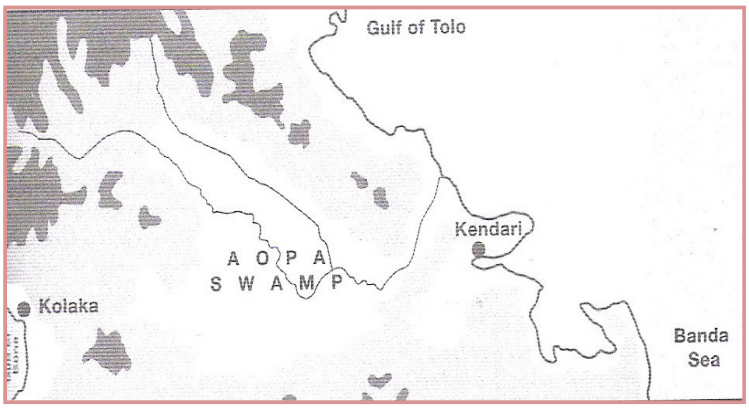

Figure 1. The location of the enclosed Aopa Swamp (after *Whitten, et. al., 2002*)

The Swamp covers a maximum area of about 38,000 ha, and this is surrounded on all sides by grasslands, cultivation or transmigration settlements. The Aopa swamp are fed by Konaweha River and several inlet rivers and drained by Konaweha River in which the outlet of the river is near Kendari City; as such the Aopa Swamp is one of important source of drinking water for the City. At the times of high river flows, water may back up in the Konaweha River which drains Aopa Swamp, causing the water level in the swamp to rise. Thus the swamp serves as a 'balancing' lake for the river system below it.

The area of the swamp varies through the year depending on rainfall. It is at maximum between May and September, falling to 20,000 ha between November and December, about 15,000 ha in January, rising to 28,500 ha between March and May. Its depth varies between 1 m and 2 m depending on location and time of year.

Source: *Whitten et. al. 2002*

(b) Conflict over land resource between Rawa Aopa-Watumohai National Park and local community and often supported by village officials. Land under disputes mostly sold by local community to new inhabitants from South Sulawesi;

(c) Rapid deforestation occurs in Mt. Mendoke, the natural boundary of Rawa Aopa Watumohai National Park with Kecamatan Ladongi and Lambadia.

Environmental impacts: *(a)* decline drinking water supply for Kendari City; *(b)* decline irrigation water for Ladongi and Lambadia Sub-districts and surrounding areas; *(c)* increase rate of accelerated erosion in Mendoke Mountain and associated siltation in the irrigation channels.

Possible solutions: *(a)* reforestation movement of degraded forest in Mt. Mendoke; *(b)* improved collaborative management between National Park and local community in Kecamatan Ladongi; *(c)* building community commitment to conserve forest in Mt. Mendoke; *(d)* garbage management and processing (composting); (e) development of cattle dung's biogas.

Proposed Awareness materials: *(a)* watershed management; *(b)* collaborative management; *(c)* development of village trees nursery; *(d)* building community commitment on forest conservation; *(e)* garbage management and processing (composting); *(f)* development of cattle dung's biogas.

Proposed Provincial Training Workshop on Controlling Environmental Degradation in Rawa Aopa Watumohai NPl. The workshop will involve the Management of Rawa Aopa Watumohai National Park, Provincial Forestry Service, Kolaka Forestry Service, BPDAS, District Drinking Water Companies (*Perusahaan Daerah Air Minum/PDAMs*), Konaweha Watershed Management Forum (*Forum DAS Konaweha*), BAPPEDA, BAPEDALDA, kecamatan governments (Ladongi, Lambuya and Lambadia), NGOs, universities, law apparatus (Polices, Prosecutors and Judges), and key elders at village level.

D.Kecamatan Tongkuno, Kabupaten Muna (19 villages)

The lithology of the area is limestone (marine sediments, mostly limestone, primarily calcium carbonate from animal shells). The area of the sub-district are dominated by lowland areas.

Kecamatan Tongkuno is known as the highest cashews production in Muna. Annual unshelled-cashews (cashew in shell, unprocessed cashews, *gelondongan*) production is about 300 tons per year. Cashews were planted during *Pak Alala* (SE Sulawesi Governor) era under *Gersamata Program* during 1980s; it was aimed at land rehabilitation (soil conservation), rather than for economic production. Later on, cashews become the most important industrial crop in Buton and Muna Islands, such as cocoa for Kolaka.

Considering that the original aim was for land rehabilitation, cashews in Muna and Buton have irregular planting space, lack of maintenance and no weeding (except 1-3 month before harvesting season) and no fertilizer. About 80 % of cashews in this area have been quite old (more than 30 years old, while the optimum production ranges between 10 – 20 years old). Harvesting season is from November/December – January/February.

The quality of harvest depends on rain intensity (the lighter the better) and frequency (the higher rain frequency of modest intensity is the better) and wind speed (the lighter wind speed is the better) during flowering seasons. Most of cashews from Tongkuno are shelled in Kecamatan *Lombe* (neighboring kecamatan within Boton District, which are well known for kernel cashews production/trade in SE Sulawesi). Other source of income is agriculture, both sawah, tegalan and cocoa plantation.

Most of KDP actors have mostly been well-informed about the existence of Green KDP, some of the village project proposals during 2007 have been related with environmental protection, especially improving access of local community to drinking water.

Root of environmental problems: *(a)* rampant illegal logging and rapid land cover changes from forested land into degraded land (29.300 ha); *(b)* unfavorable geological and geomorphologic conditions for water resource.

Environmental impacts: poor access to drinking water supply, especially East and North Tongkuno.

Other environmental problems: *(a)* Poor sanitation and drainage on settlement area; *(b)* degraded mangrove; *(c)* poor brackish fish culture; *(d)* garbage management and processing (composting).

Possible solutions: *(a)* reforestation movement of degraded forest; *(b)* building community commitment to conserve the remaining forest; *(c)* building rainwater harvesting; *(d)* Improve water sanitation; *(e)* garbage management and processing (composting).

Proposed awareness materials: *(a)* watershed management; *(b)* development of village trees nursery; *(d)* building community commitment on forest conservation; *(e)* building rainwater harvesting; *(f)* land rehabilitation.

Proposed Training Workshop on Strengthening Forest Governance in Muna District.
The workshop will involve the Muna District Forestry Service, Provincial Forestry Service, BPDAS, PDAM, BAPPEDA, BAPPEDALDA, kecamatan Tongkuno, Lawa and Napabalano, NGOs, universities, law apparatus (Polices, Prosecutors, Judges), key elders at village level.

E. Kecamatan Lawa, Kabupaten Muna (15 villages)

The lithology of the area is limestone. The area of the sub-district are dominated by upland areas. It is located at the horse-back of Muna island, as such most of the area experience water shortage, as the depth of groundwater table is at least about 35 meter.

The main source of income is agriculture, mostly rainfed land, cashews and *pekarangan* (homegardens). The Indonesian term *pekarangan* is derived from the word *karang*, meaning a place of residence and, hence *pekarangan* specifically refer to a garden on the residential area.

Most of houses in this Kecamatan are surrounded by striking feature of green and forest-like structure (agroforestry) system. Most of pekarangan consist of a mixture of perennial and annual crops. The pekarangan provide aesthetic pleasure and shelter for many animals such as birds, that use them for nesting, feeding and roosting. The system has great

diversity of species with many life forms varrying from those creeping on the ground, such as sweet potato, to tall trees of fifteen metres, e.g. coconut palm, bamboo, cocoa, *gamal* (*Gleresidia maculata*), with pepper climbing on those trees. The multistorey canopy structure has reduced soil erosion, as such the system has good environmental services and socio-economic funtions as well, especially during the period of waiting for maize, cocoa and cashews harvest.

Box 3. Rainwater Harvesting in Napabalano, Lawa, Tongkuno, Mawasangka, Sampolawa and Pasarwajo

Various alternatives of *rainwater harvesting* technique (*Penampung Air Hujan/PAH*) are worth to be developed in those kecamatans. These efforts range from the collection of rainwater from roofs to the retention of surface and sub-surface flow in rivers. The most practice solution is collecting and conserving rainwater at as early a stage possible in the hydrological cycle to ensure the best use of rainfall, before it has run away into rivers and groundwater, or has disappeared as evaporation. Additional benefits from such measures of water control will often include a reduction in soil erosion, landslides as well as the damage caused by flooding.

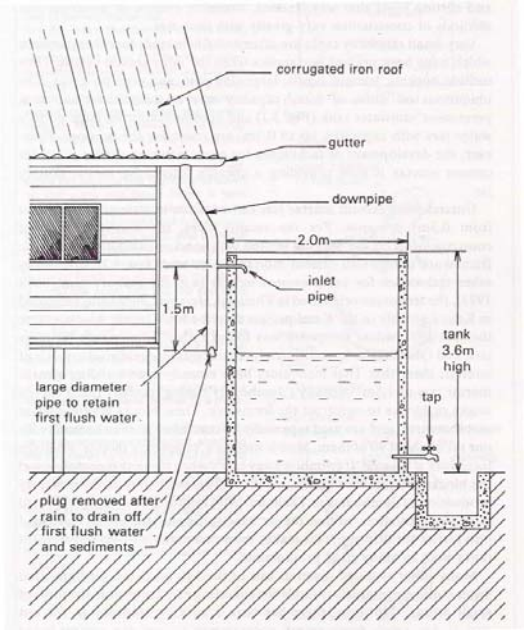

Figure 2. Example of rainwater harvesting technique (After *Pacey A. and A. Cullis, 1986*)

In 2008, the kecamatan have been the target of three PNPM, i.e. reguler KDP (*PNPM MP*), green KDP (*PNPM MLP*) and KDP SADI (*PNPM SADI*).

Root of environmental problems: *(a)* rampant illegal logging and rapid land cover changes from forested land into degraded land; *(b)* unfavorable geological and geomorphologic conditions for water resource.

Environmental impacts: poor access to drinking water supply

Other environmental problems: Poor sanitation on settlement area, most households do not have toilets.

Possible solutions: *(a)* building rainwater harvesting; *(b)* Improve water sanitation; *(c)* garbage management and processing (composting); (c) rehabilitation of degraded lands.

Proposed awareness materials: *(a)* watershed management; *(b)* development of village trees nursery; *(c)* building rainwater harvesting; *(d)* Improve water sanitation; *(e)* garbage management and processing (composting); *(f)* rehabilitation of degraded lands.

Box 4. Karst Landform, Limestone and Water Shortage in Muna and Buton Islands

Rain penetrating any soil over permeable rock in non kartstic area passes downwards through an unsaturated zone, where rock pores are only temporarily filled with water, into saturated zone. The upper surface of saturated zone is called the watertable. The watertable is more or less parallel to the land surface and the groundwater flows according to the slope of the watertable. Springs are encountered where the watertable intersecs the surface.

The actual nature of water circulation in karst areas is not fully understood. The most critical effect of karst lies in the enlargement of underground voids, causing extreme porosity of the rock. This leads to the progressive replacement of surface by underground drainage leading to very little water is found near surface. *Karst* refers to terrain with distinctive landforms and drainage arising from greater rock solutibility in natural waters than elewhere. The phenomenon occurs most notably in limestone, which chemically consists largely of calcite, a mineral form of calcium carbonate (*CaCO3*). As a results, community living in karst terrain or limestone lithology such as in Buton (such as, Kecamatan Pasarwajo and Sampolawa) and Muna (such as, Mawasangka, Tongkuna and Lawa) has critical water shortage problem. Rice culture (*sawah*) is mostly not suitable in the kartstic area, because of the porous nature of the bedrock, unless in the area where not far below the surface are impermeable rocks which can cause ponds to form on the surface. Sawah still occur in some area in Kecamatan Tongkuno and Lawa.

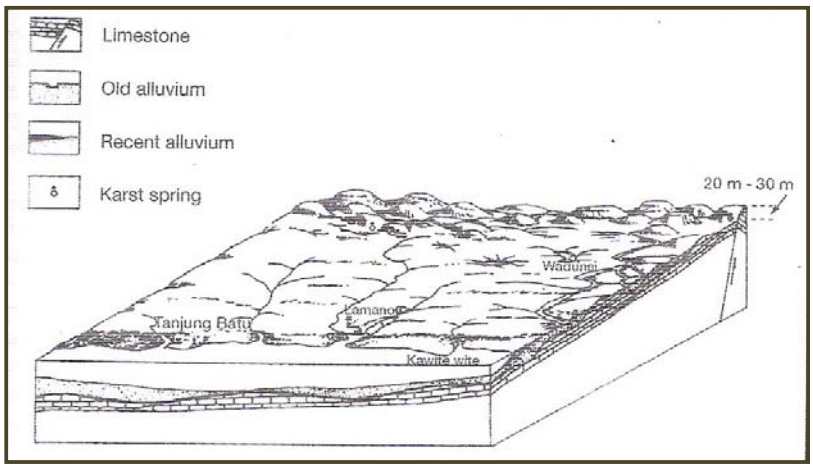

Figure 3. View east over the west coast of Muna Island to show conical hill karts (*Whitten et. al., 2002*)

F. Kecamatan Napabalano, Kabupaten Muna (14 villages)

The area of the sub-district are dominated by coastal areas. The lithology of the area is upper tertiary marine sediments. It is located at the northern part of the Muna Island and some small islands surrouning *Tampo* area. The teresstrial area of the kecamatan was mostly the remnant of lowland and costal rainforest, part of them is the relic of well-known teak plantation which have almost disappeared in Muna Island. The natural forest only left behind 10 ha protected forest area of *Napabalano Nature Reserve*[2]. The nature reserve is located about 2 km before Tampo (the capital of Kecamatan Napabalano), surrounded by rainfed land (mostly planted with cassava) and intercropped with teak.

Root of environmental problems: *(a)* Rapid conversion of lowland rain forest into rainfed agriculture land; *(b)* degradation of mangrove forest; *(c)* seagrass meadow destruction.

Environmental impacts: *(a)* scouring of coastal area (abrasion); *(b)* Lack of drinking water; *(c)* declining of fish catch per unit effort.

Other environmental problems: Poor sanitation and drainage on settlement area near costal area.

Possible solutions: *(a)* replanting mangrove; *(b)* Improve water sanitation; *(c)* planting seagrass; *(d)* building coastal abrasion control.

Proposed Awareness materials: *(a)* development of mangrove trees nursery; *(b)* planting seagrass; *(c)* planting mangrove; *(d)* physical measures to control coastal abrasion.

G. Kecamatan Pasarwajo, Kabupaten Buton (20 villages)

The lithology of the area is dominated by limestone. It has two types of villages, upland and coastal villages. The former is located between Bau-Bau Town and Pasarwajo passing the hinterland of Buton Island and share border with Lambusango Forest (Wining, Lapodi, Waangu-angu, Warinta, Wakaokili), while the latter is located surrounding Pasarwajo Gulf (Holimombo Jaya, Kondowa, Dongkala, Wagola, Takimpo, Lapanda, Awainulu, Banabungi, Kambula-mbulana, Pasarwajo, Saragi, Wasaga, Kahulungaya, Kancinaa).

The income sources of interior villages are rainfed agriculture (maize and rice), plantation (coffee, cocoa, coconut, areca nut/*pinang*) and collection of non-timber forest products (rattan), while coastal villages rely on cashews plantation, home industries (coconut oil) and traditional fisheries.

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[2] The Napabalano NR was established in 1919. The reserve is composed of 'primary forest' (5 ha) and surrounded by secondary forest where the old teak tree (*Tectona grandis*) of 350 years and diameter of 180 cm is located. About 29 trees species are found, such as Beringin (*Ficus benjamina*), Bayam (*Intsia bijuga*), Wara (*Hibiscus tiliaceus*), Eha (*Castanopsis butuana*), Gito-gito (*Diospyros plasenthera*), Asam (*Tarnarindus sp*), Cendrana(*Pterocarpus indicus*), Damar (*Canarium sp*),Soni (*palaquium spp*), Rotan (*Calamus sp*) dan Pandan hutan (*Pandanus sp*).

The Pasarwajo town, which has recently become the capital of Buton District, is an old town established since the Dutch Company exploited asphalt in Kabongka (Wining Village) during early 1930s. Up till now, Pasarwajo is still the main port of Asphalt Buton (apart from *Nambo* in Lawele) to ship asphalt to China and several provinces in Indonesia (see *Box 6*).

Box 5. Lambusango Forest

Lambusango Forest is lowland rainforest located in the southern part of Buton Island with an area of ± 65,000. Much of this is intact and none faces the major pressures for forest clearance from oil palm plantations, pulp industry or sawmills that so threaten the forests in the rest of the country. This forest is made up of different categories: 29,320 ha of two protected areas, Kakenauwe Nature Reserve (± 810 ha) and Lambusango Wildlife Reserve (± 28,510 ha) which are managed by the Natural Resource Conservation Agency (*BKSDA*) S.E. Sulawesi on behalf of the central government (Ministry of Forestry), and ± 35,000 ha of protection forest and production forest which are managed by local government, i.e. the Buton District Forestry Office (DFO/*Dishut* Buton).

Illegal logging, rattan extraction, forest area encroachment, asphalt mining, and hunting are some of the greatest threats that are likely to raze the remaining Lambusango Forests. The nature and intensity of the threats is growing when the government cut the fuel subsidy to bring price to international market in the beginning of October 2005. This lead to the increase of fuel prices more than 100 percent. The problem is particularly severe, as the resource is the only extensive and intact natural forest in Southern Buton. The continued economic crisis, compounded by the recent regional development setting, has put pressure on the current and future conservation of the Lambusango forest.

Since June 2005, OWT has executed the *Lambusango Forest Conservation Project* (LFCP) aiming at procuring necessary technical services and related resources to facilitate the development of cohesive and comprehensive multi stakeholder forest conservation program, which enable to maximize protection, increase benefits to local community, demonstrate effective decentralized forest management and reduction in the level of threat to Lambusango Forest. The project has seven components: *(a)* Multi stakeholder Community Forestry Management Forum; *(b)* Village Business development/Wildlife Conservation Products; *(c)* Collaborative forest protection/law enforcement; *(d)* Training, Education and Awareness; *(e)* Skill Development *(f)* Monitoring, and *(g)* Promotion (replication). To date, all components, except promotion, have mostly been implemented.

Root of environmental problems: *(a)* deforestation of Lambusango Forest; *(b)* degradation of mangrove forest; *(c)* unsustainable fishing; *(d)* seagrass meadow destruction; *(e)* unfavorable geological and geomorphologic conditions for water resource.

Environmental impacts: *(a)* scouring of coastal area (abrasion) in Wasaga Village ; *(c)* Lack of drinking water in all villages; *(c)* declining of fish catch per unit effort.

Other environmental problems: Poor sanitation in Lapodi and Wasaga Villages.

Possible solutions: *(a)* reforestation of degraded forest; *(b)* building community commitment to conserve the remaining Lambusango Forest; (c) building rainwater harvesting; *(d)* improve water sanitation; *(e)* planting seagrass; *(f)* garbage management and processing (composting); *(g)* physical measures to control coastal abrasion.

Proposed awareness materials: *(a)* development of village trees nursery; *(b)* building community commitment on forest conservation; *(c)* building rainwater harvesting; *(d)* planting seagrass; *(e)* garbage management and processing (composting); *(g)* physical measures to control coastal abrasion.

Box 6. Asphalt Mining and Lambusango Forest Conservation

Asphalt is a black, sticky mixture of bitumen or tarry hydrocarbons and mineral matter. About 70,000 ha of limestone in the southeast of Buton Island are impregnated with asphalt to the extent of 10%-40 % by weight. These hydrocarbon mixtures have migrated upwards along faults above deep deposits into recent, relative porous rocks and the lighter fractions have evaporated, leaving the viscous asphalt behind. The asphalt deposits with concentrations of 20%-30 % were first exploited in the 1920s, primarily for tarring roads, and remain the only source of natural asphalt in Southeast Asia (*van Bemmelen 1970, Whiiten, 2002*)

The deposits of asphalt in Buton Island is mostly located in the Lambusango Forest, elongated from Lawele (Kecamatan Lasalimu) to Kabungka (Kecamatan Pasarwajo). The asphalt is currently mined opencast, a process that involves complete removal of the overburden and its vegetative cover.

The rate of exploitation has risen during the last five years in line with the rise of international oil price. Ministerial Decree of *Kimpraswil* (Public Works) No. 35/PRT/M/2006 on intensification of Buton Asphalt utilization stipulated the compulsory use of asphalt Buton for 14 provinces. Apart from fulfilling national demand which has become national priority, Buton asphalt has exported to China. Needless to say, the pressures on those parts of the Lambusango forest that containing economically exploitable deposits could well be greater than arise in other parts of Indonesia from either logging or agricultural clearance.

A figure of 650 million tonnes has been widely quoted for the asphalt reserves of Buton (*Hetzel (1936).* By assuming a rock density of 2 ton per m3, an average exploitable grade of 15 % bitumen by weight and a typical mine working a sub-horizontal seam 5 m thick. These parameters imply a resource of 1.5 tons of bitumen per square meter, and the need for clearance of an area of more than 40 km2 to extract the Lambusango Reserve. In addition, significant areas would be required for access roads, temporary storage and general facilities. Most of the land taken would lie either within the Lambusango Forest or immediately adjacent to it.

H. Kecamatan Mawasangka, Kabupaten Buton (16 villages)

The sub-district is located in the southern part of Muna Island and all the villages are located in coastal areas. The area is uncomfortable for agriculture (land based) activities, as soil is very shallow and dominated by limestone rock outcrop. Community rely on marine activities, mostly seaweed farming and near-shore fisheries.

Buton and Muna Islands are one of the biggest seaweed production sites in Indonesia. The average dry seaweed (*Eucheuma sp*, *Gracilaria sp*) production is 114 ton/year; about 45 percent originates from Kecamatan Mawasangka, Kecamatan Mawasangka Tengah and Kecamatan Mawasangka Timur. The business is currently being the most suitable alternative for fishermen in response to the oil price rising. Planting season is the whole year, except during the peak of dry season (July - August) where the different of range of diurnal salinity is very high. Planting duration is 40 - 45 days. Price of dried-seaweed now is getting better; it ranges from Rp. 6.000 - 6.500/kg (at farmer gate). The ratio between

wet and dry seaweed is 8 to 1, 8 kg wet seaweed become 1 kg dry seaweed with 20 % water content.

Seaweed farming has declined destructive fishing, as community devoted their time on seaweed farming, and thereby less time for fishing. More importantly, the use of *Potassium cyanide* for fishing has reduced dramatically, as farmers believe the negative affects of *Potassium* on seaweed growth.

Brackish-water fish and prawn ponds (*tambak*) are widespread (Oengkolaki, Banga, Tanalandau, Kanapa-napa and Tarapung village), similarly with mangrove forest (Oengkolaki, Banga, Tanalandau and Kanapa-napa villages). Some villages in Kecamatan Mawasangka have been the target area of COREMAP II, such as Wakambangura, Gumanano, Kancebungi, and Terapung.

Root of environmental problems: *(a)* bad drainage (swampy area) in Terapung Village; *(b)* rapid degradation of mangrove forest; *(c)* degradation of coral reef due to boom and bust cycles in the past; *(d)* conflict of seashore area, especially after the rapid development of seaweed farming; *(e)* seagrass meadow destruction; *(g)* unfavourable geological and geomorphologic conditions for water resource.

Environmental impacts: *(a)* scouring of coastal area (abrasion); *(b)* Lack of drinking water; *(c)* declining of fish catch per unit effort; *(d)* prevalence of *Malaria* during wet season in Terapung Village.

Other environmental problems: Poor sanitation on settlement area near costal area, mostly due to lack of water.

Possible solutions: *(a)* planting mangrove; *(b)* building rainwater harvesting; *(d)* improve sanitation; *(e)* develop silvo-fishery on brackish-water ponds; *(f)* planting seagrass; *(g)* garbage management and processing (composting); *(h)* physical measures to control coastal abrasion.

Proposed awareness materials: *(a)* development of mangrove trees nursery; *(b)* building rainwater harvesting; *(d)* silvo-fishery; *(e)* planting seagrass; *(f)* garbage management and processing (composting); *(g)* improve sanitation; *(h)* physical measures to control coastal abrasion.

Proposed Training Workshop* on *Coastal Area Management in Buton District. The workshop will involve Province and Buton Fishery and Marine Services, BAPPEDA, BAPPEDALDA, kecamatan Pasarwajo, Mawasangka, Sampolawa, COREMAP II, CRMP, NGOs, Universities, key elders at village level.

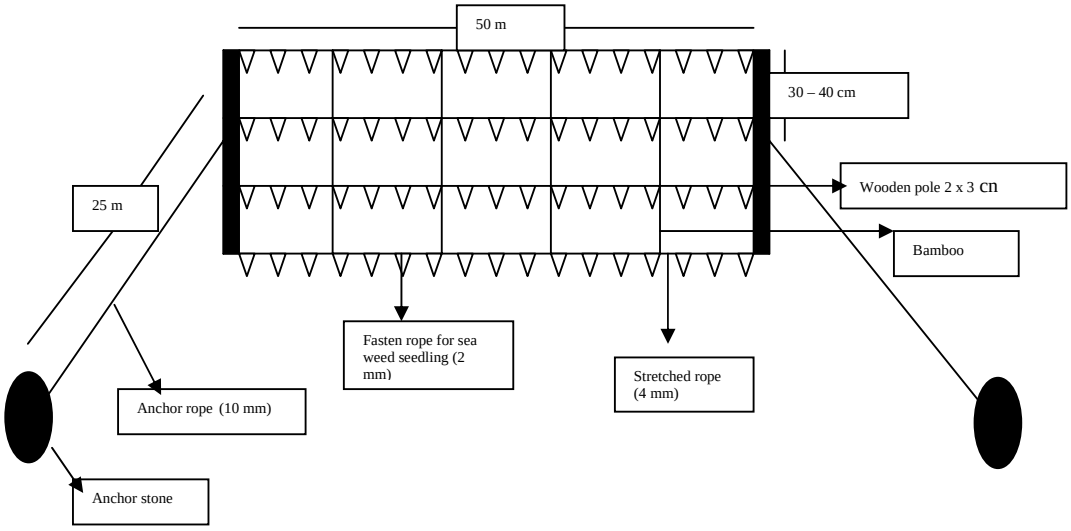

Figure 4. Schematic figure of seaweed farming raft in Mawasangka

Box 7. Seagrass meadow degradation in Mawasangka, Sampolawa and Pasarwajo

Seagrasses generally grow gregariously and the larger ones can be said to form meadows (*Padang Lamun*). Seagrasses are found in shallow coastal waters or in lagoons between coral reefs and the shore. *Thalassia hemprichii* being the most common and conspicuous. This species frequently grows in association with *Halophila ovalis*, *Halodule wrightii*, *H. pinifolia* and *Syringodium isoetifolium*, *Enhalus acomides* is most commonly found bordering mangroves and lagoons or in bays where the water is warn, still, slightly greenish or turbid with a relatively high organic load.

Agricultural, industrial and domestic effluents discharged into the sea, dredging, heavy boat traffic and other human activities can have detrimental effects in seagrass meadows. Where seagrasses are lost the subsequent changes that can be expected include:

(1) Reduction of detritus from seagrass leaves with consequent changes in coastal food webs and fish communities;
(2) Change in the dominant primary producers from benthic to planktonic.
(3) Changes in beach morphology due to loss of the sand-binding properties of seagrass.
(4) Loss of considerable structural and biological diversity and their replacement with bare sand.

In areas where seagrass meadows have been lost, it is possible to restore the meadows by planting.

Source: *Whitten et. al., 2002*

I. Kecamatan Sampolawa, Kabupaten Buton (12 villages)

The lithology of the area is dominated by limestone. There are three types of villages in the sub-district, first are villages located in coastal areas: Bangun, Wawoangi, Jayabakti, Katilombu, Tira, Bahari and Gerak Makmur. Secondly are village located in the

surrounding *Sampolawa River* course: Lipumangau and Todombulu, and third are villages in the upland (mountainous) area: Hendea, Gunung Sejuk and Sandang Pangan.

The kecamatan still preserves the remnant of old teak forest plantation established during early 20th century. The forest area is 498 Ha with average standing stock of 176.8 m^3/ha. The teak forest has become the seed orchard of teak plantation development in SE Sulawesi.

Box 8. Bad sanitation and water shortage in Mawasangka, Sampolawa and Pasarwajo

Many households in coastal area in those kecamatans are used to employ seashore as toilets and place to dispose garbage. The problem in building, using and maintaining sanitation in this area has been hindered by shortage of water. The bad sanitation has driven the outbreak of malaria, diarrhea (*muntaber*), and fruit borer pest for cocoa plantation in this area.

The income sources of interior villages are rainfed agriculture (maize and rice), plantation (coffee, cocoa, coconut, areca nut/*pinang*), while coastal villages rely on cashews plantation and seaweed farming and traditional fisheries. Seaweeds farming have been developed in *(a)* Jayabakti; *(b)* Katilombu; *(c)* Bangun and *(d)* Wawoangi.

Several coastal villages have been the target area of COREMAP II project: Tira, Bahari and Gerak Makmur (Lande). Some activities done by the COREMAP II project are included: *(a)* Socialization of the program; *(b)* Socio-economic survey; *(c)* Facilitation on the development of coral reef management planning; *(d)* Facilitation on the development of local Marine Protected Area.; *(e)* Facilitation on the development of alternatives income generation outside fisheries.

Box 9. Problems of near-shore fisheries in Mawasangka, Sampolawa and Pasarwajo

The islands of Buton and Muna are located at the centre of the Wallace region in SE Sulawesi. The Wallace region is a biodiversity 'Hot Spot' for both terrestrial and marine organisms on a global level, possessing a quarter of the world's fish species and the highest diversity of coral in the world. Protection of marine biodiversity in this area by preventing the loss of species and decline in the level of diversity is thus of high priority both nationally and internationally. Though the protection of biodiversity is a somewhat abstract concept to fishers, who have more pressing issues of food security and income to address, there are more tangible reasons for communities to protect biodiversity.

The fisheries are highly complex, both spatially and temporally, with multiple landing sites and numerous fishing grounds. Fishing technique use varies according to tides and seasons, but over 15 different techniques are used on a regular basis to target over 350 species of fish and invertebrates. These techniques can be grouped into: bamboo pot traps (*bubu* traps); fish fences (*sero*); gill nets (set and drive-in, *jaring insang*); seine nets, reef gleaning; spear gun; hand line fishing and hand trawling.

Although these fisheries remain essential to communities for food and income, the notion that all fishing is performed at traditional levels, using traditional techniques primarily for subsistence is no longer accurate. Since the 1950's there has been a rapid increase in fishing power, from subsistence-orientated, low efficiency traditional techniques to highly efficient commercial techniques using modern materials. The increase in the economic importance of the Buton-Muna fisheries is reflected by the development of commercial fisheries, namely the export of live fish and lobster (since 1993), and fresh octopus (since 1995) and tuna (since 1997), in the last twelve years, as trade routes and facilities such as ice have improved. During this period, commercial fisheries have been characterised by boom and bust cycles. To a certain extent, this has masked the impact of resource decline for communities because as one species is fished out, new species have become available for exploitation, from which they have been able to generate an income. However at present, the number of new species available for commercial exploitation is limited.

The fact that traditional fisheries remain open access means they are often exploited to the benefit of individuals rather than the long-term needs of local communities as a whole. Recent developments in the number of fishers, the number and types of fishing gear and commercialisation of traditional fisheries, together with an increased demand to supply food and meet material aspirations of a growing population, has placed fish stocks under additional pressure. If left unmanaged the presently overfished stocks around these islands will eventually collapse which will have a serious impact on the food security and livelihoods of communities of this area.

Root of environmental problems: *(a)* degraded mangrove; *(b)* degradation of coral reef and due to boom and bust cycles in the past; *(b)* scouring of coastal area (abrasion); *(c)* unsustainable fishing; *(d)* Accelerated river siltation due to rapid land cover changes of Lambusango Forest in the upstream catchment; *(e)* seagrass meadow destruction; *(f)* unfavorable geological and geomorphologic conditions for water resource.

Environmental impacts: *(a)* declining of fish catch per unit effort; *(b)* degradation of coral reef due to high sedimentation of Sampolawa River.

Other environmental problems: *(a)* Garbage disposal problems, especially near Sampolawa market; *(b)* Poor sanitation of the coastal settlement area.

Possible solutions: *(a)* reforestation movement of degraded forest; *(b)* building community commitment to conserve the remaining forest; *(c)* building rainwater harvesting; *(d)* Improve water sanitation; *(e)* planting seagrass; *(g)* garbage management and processing (composting); *(h)* physical measures to control coastal abrasion.

Proposed awareness materials: *(a)* development of village trees nursery; *(b)* building community commitment on forest conservation; *(c)* building rainwater harvesting; *(d)* planting seagrass; *(e)* garbage management and processing (composting); *(f)* physical measures to control coastal abrasion.

The summary of environmental issues and problems in every kecamatan can be inspected in **Annex *D.***

III. Completed Activities During January 2008

A. Inception Workshop

OWT in cooperation with *Yascita* and *LePMIL* has socialized training and awareness of G-KDP to relevant actors and stakeholders in SE Sulawesi Province, Kolaka, Muna and Buton Districts during one-day Inception Workshop held in Imperial Hotel-Kendari, on January 15, 2008.

This section provides summary of the workshop organization. The complete report has been prepared in Indonesian (*Wijaya A. and E. Purwanto, 2008. Laporan Lokakarya Pendahuluan PNPM Mandiri Lingkungan Pedesaan di Propinsi Sulawesi Tenggara*) and will be distributed soon.

The objectives of the workshop are to: *(a)* identify environmental issues at regional, district and sub-district level; *(b)* identify training needs at province and district level; *(c)* formulate environmental awareness strategy at kecamatan and village levels which will be integrated with the process of KDP cycle; *(d)* formulate principles and standards of G-KDP activities at village and kecamatan level. To reach the objectives of one-day workshop effectively, OWT was prepared six workshop materials, i.e. *(a)* Important Environmental Issues in Every G-KDP Kecamatan; a preliminary observation; *(b)* Principles and standards of G-KDP activities at village level; a preliminary thoughts; *(c)* Proposed training at province level in 2008; *(d)* Proposed training at district level in 2008; *(e)* Environmental awareness strategy at kecamatan and village levels; *(f)* Proposed follow-up activities after inception workshop.

The workshop started at 8.35 am and lasted at 5.48 pm. It was attended by 44 participants (see *Annex E*). Most of participants were actively participated from the beginning until the end of the workshop.

a. Opening Session

Dr. Edi Purwanto explained the objectives and organization of the workshop. He also introduced the CSOs consortium that will conduct training and awareness of G-KDP in SE Sulawesi. The Workshop then was officially opened by *Drs. H. Umar Abibu, MSi*, Head of *Badan Pemberdayaan Masyarakat* (BPM) of SE Sulawesi Province.

b. Presentation and Plenary Discussion Session

Three speakers provided introductory session to give background on the implementation of KDP (PNPM Mandiri Pedesaan/PNPM MP) in SE Sulawesi Province, the concept of G-KDP and roles of CSOs to support G-KDP implementation in SE Sulawesi. The speakers were; *(a) Pak Sulung Maha Indra* (Coordinator Consultant at Province Level); *(b) Ibu Vivianti Rambe* (Team Leader of G-KDP, World Bank Staff); *(c) Dr. Edi Purwanto* (Coordinator Training and Awareness of G-KDP in SE Sulawesi, Director OWT). The session was led by *Pak Anas Nikoyan* (Lecturer and Head of Environmental Study, Unhalu).

Pak Sulung discussed the principle mechanism of PNPM MP and the implementation of the program in SE Sulawesi Province since 1998. *Ibu Vivi Rambe* discussed the principal and organization of pilot G-KDP for mainstreaming environmental management in KDP in Sulawesi; she discussed four components of G-KDP and the amount of BLM (community grants) and DOK (operational fund). *Dr. Edi Purwanto* explained the position of training and awareness within G-KDP, preliminary environmental issues in every kecamatan, proposed training at province and district levels, awareness strategy at village and kecamatan levels.

The presentation session was followed with plenary discussions, there were four questions and one suggestion emerged from audience.

Conclusion: G-KDP should be able to synergize all development initiatives which have been in existence at village level, mainstream environmentally sound mindsets to all development actors.

c. Working Group Session

After lunch break (13.15 o'clock), participants were divided into four working groups, i.e. province (WG1, facilitator *Abdul Halik*, 10 participants); District Muna (WG2, facilitator: *Mastri Susilo*, 10 participants), district Buton (WG3, facilitator: *Arif Rahman*, 10 participants) and District Kolaka (WG4, facilitator *Muchlis L. Usman*, 10 participants).

The main task of every working group was to scrutinize and elaborate the given workshop materials (6 documents). The materials were aimed as thoughts stimulant, to enable to dig-up and explore participant thoughts in systematical manner. With guidance of facilitator, they can freely correct and elaborate the draft based on their experience and vision.

The working group discussion lasted until tea break time at 15.45. Representatives of every working group (WG1: *Abdul Halik*, WG2: *Mastri Susilo*, WG3: *Arif Rahman* and WG4: *Eko Purwanto*) then presented the results of discussion in the plenary session. The questions and discussion during this session were so fruitful and all participants were very enthusiastic and pleasant to follow the discussion.

d. Workshop Conclusions

a) G-KDP should be able to synergize and make use of any development initiatives which have already been in existence at village level (COREMAP II, SADI etc.).

b) Prior the implementation of awareness program at village level, it is necessary to make clear the roles and responsibilities of every KDP actors, particularly between KDP and G-KDP actors (NGOs, green-facilitators, KDP facilitators, village facilitators etc).

c) To maximize impacts of training at province and district levels, efforts will be made to explore any possibilities to enable to organize joint training implementation with relevant parties having the same vision with G-KDP.

d) The implementation of training will be in the form of training workshop, ensuring well-selected actual environmental topics facing by province and districts. The training workshop will involve high level decision makers to ensure measurable follow-up actions of the training.

e) The implementation of green awareness will be organized in close coordination and in-line with the cycle of KDP. The starting time will be exactly the same and not necessary to wait until green facilitators on-site.

f) The implementation of G-KDP pilots are expected to enable to improve the implementation of KDP.

g) Training materials for green-facilitators should cover relevant environmental restoration techniques of main environmental issues in every G-KDP kecamatan participants as identified during environmental assessment and supported with the results of KAP survey.

h) G-KDP should enable to assist community to develop sustainable income sources (livelihoods).

i) G-KDP may unable to use quantitative indicators to evaluate environmental improvements resulting from project implementation, given the poor base-line data and considerable time required to show significant environmental impacts.

B. Socialization of G-KDP

a. Live Interviews and Interactive Discussion in Kendari TV

On January 15, 2008, OWT in cooperation with Kendari TV organized G-KDP socialization. The topic of discussion was *'G-KDP: towards welfare community and sustainable environment'*, it was lively broadcasted from 8.00 to 9.00 pm in the special interviews program of *Kendari TV* popularly known as *'Teporombu'*.

The interview was guided by *Pak Sofyan* from Kendari TV and invited four resource persons; *(a) Ibu Vivianti Rambe* (World Bank); *(b) Pak Sulung Maha Indra* (coordinator consultant); *(c) Pak Tasman* (BPMD); *(d) Pak Edi Purwanto* (OWT).

Four topics were discussed: *(a)* the implementation of KDP in SE Sulawesi Province; *(b)* the principle of G-KDP; *(c)* Roles of training and awareness in G-KDP. Four questions were received from the viewers, mainly related with the implementation of KDP in SE Sulawesi. In fact, this program was the first KDP socialization using local television in SE Sulawesi Province.

b. Publications in *Kendari Pos*

There were two news and one opinion published in *Kendari Pos* during January 2008. The first news was published on January 15, 2008, *'Workshop PPK Hijau Digelar Hari Ini'* (Workshop of G-KDP held today), second news was published on January 17, 2008, '*Masyarakat Sejahtera Lewat PPK Hijau*' (Community welfare through G-KDP). This latter news was published on the basis on *press release* prepared by *Pak Rahmad Sabang* (G-KDP Coordinator).

The first article on G-KDP was published in Opinion Column on Monday, January 28, 2008 entitled *Masyarakat Berdaya Lingkungan Lestari (*Toward empowered community and sustainable environment*).* The article was written by *Dr. Edi Purwanto* on the basis on *Ibu Vivianti Rambe* and *Pak Rahmad Sabang* written materials.

In this article, *Pak Edi Purwanto* intentionally mentioned his office address and his mobile phone; interestingly he received 11 phones and 20 short message systems (SMS) from the readers with have various different professions, from lecturers, environmental experts, local communities and government official. Some of them expressed their agreement with the concept of G-KDP, while others report environmental problems in their own areas.

C. KAP Survey

The KAP (knowledge attitude and practices) survey would have three main objectives: *(a)* Gather data on stakeholder groups that will participate in the Green-KDP/KDP; *(b)* Gather baseline data to enable assessment of performance of the Green-KDP/KDP; *(c)* Provide data for stakeholder groups to encourage their planning and further development of the Green-KDP/KDP.

The need of KAP survey was emerged during *SOFEI* Workshop in Makassar on November 28, 2007. In response to the need on KAP survey, during December 2007, OWT has prepared KAP survey questioners. After discussing the draft with *Ibu Vivianti Rambe* and *Finn (*M&E Consultant*)*, they suggested to improve and enrich OWT questioner with *Yayasan Lestari* and *Finn* Questioners. Efforts were made to develop questioners by adopting *Finn* and *Yayasan Lestari* Questioners plus OWT original concept.

On January 22, 2008, OWT discussed the new version of the KAP Questioner with *Yascita* and *LePMIL*. The final English version of SE Sulawesi's KAP Survey Questioners can be inspected on ***Annex F***.

The KAP survey will cover two types of respondents. The first type (treatment group) will be respondents from kecamatans that participate in the Green-KDP/KDP. The second type will be a control group from kecamatans outside of the Green-KDP/KDP. The control groups will be selected by using the following criteria: *(a)* The kecamatan should be located in the same geographic region, but not be a participant in the Green-KDP/KDP; *(b)* The kecamatans in the control group should have a population size that is more or less equal to the treatment group. The control kecamatan for Buton District is *Kecamatan Wolowa*, while for Muna is *Kecamatan Lohia*, Kolaka is *Kecamatan Lambuya*.

The survey will include two samples: *(a)* randomly selected general public sample; *(b)* sample of decision-makers / influential persons at kecamatan level.

For the general public sample, the following selection criteria should be used: *(a)* Both Males & Females (about 50 percent of each); *(b)* Aged more that 17 years (with no a priori upper age limit); *(c)* All social classes; *(d)* Permanent residents of area; *(e)* The respondent should be able to understand and answer the questions. The decision-makers / influential persons sample will be selected purposively. This sample will consist of officials representing various sectors that are important for environment and natural resources management.

Since January 25, 2008, *OWT, Yascita and LePMIL* have started to conduct KAP survey. The data collections are expected to be completed about mid February 2008.

V. Planned activities during February and March 2008

A. Project Management

1. To coordinate, administer and support the overall implementation of the project.
2. To prepare *Financial Monitoring Report* (FMR) for quarter ending March 31, 2008.
3. The PM will submit to the World Bank planned activities for April – June 2008, and the report on progress on training and awareness between February and March 2008.

B. Environmental Training

1. Prepare and organize Provincial Training Workshop: *Controlling environmental Degradation in the Rawa Aopa Watumohai National Park (RAWNP).*

    a. Conduct environmental/ecological survey on RAWNP
    b. Develop collaboration with RAWNP authorities, especially for joint training implementation.
    c. Contact relevant resource persons
    d. Develop training workshop materials
    e. Organize multi-stakeholders meeting to discuss technical aspect on training implementation
    f. Develop manual for field activities
    e. Arrange letter of invitation to attend training workshop signed by SE Sulawesi Governor
    f. Organize three days training workshop (about end of March 2008)

2. Prepare and organize District Training Workshop: *Coastal Area Management in Buton District*

    a. Conduct environmental/ecological survey on coastal area in Pasarwajo, Sampolawa and Mawasangka
    b. Develop collaboration with COREMAP II and MCRMP, especially for joint training implementation.
    c. Contact relevant resource persons
    d. Develop training workshop materials
    e. Organize multi-stakeholders meeting to discuss technical aspect on training implementation
    f. Develop manual for field activities
    e. Arrange letter of invitation to attend training workshop signed by Bupati
    f. Organize three days training workshop (about mid March 2008)

C. Environmental Awareness

a. Attend KDP coordination meeting at District and Provincial level
b. KAP survey data collection and processing
c. Analyze the results of KAP Survey and writing the report
d. Together with KDP actors at district and kecamatan level to organize *MAD Socialization*
e. Together with KDP actors to organize *Musdes Socialization* at village level
f. Facilitation of *Green KPMD* selection during Musdes Socialization
g. Develop tools for *Participatory Rural Environmental Development Planning (PREDP)*
h. Organize *PREDP* training for FK and FT.
i. Organize *PREDP* training for KPMD
j. Facilitate and supervise the implementation of *PREDP* at village level

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