



United Nations
Educational, Scientific and
Cultural Organization

ORGANISM:	UNESCO Office, Jakarta
NAME OF THE PROJECT	Promoting conservation to halt degradation of the rainforest heritage of Indonesia (i.e. Sumatra, Siberut) and improve the management of protected areas.
EXECUTION TIME	
STARTING DATE	15 Jan 2008
ENDING DATE	14 July 2009
TOTAL BUDGET	250.000 EUR OAPN 150.000 EUR MARM
BUDGET CODES	514INS2003 514INS2004
REPORT NUMBER	FINAL
PLACE OF EXECUTION	Gunung Leuser National Park, Sumatra, Indonesia Siberut National Park, Sumatra, Indonesia

1. BACKGROUND OF THE PROJECT

As little as four decades ago, the Indonesian island of Sumatra was almost completely covered by tropical forests, but as a result of logging, infrastructure development, internal migration and plantation development, the forest surface of Sumatra has been reduced by 61% between 1985 and 1997. This process of deforestation is posing serious problems in terms of biodiversity loss, loss of natural resources and increased carbon emissions. The deforested area increases yearly, 1.350.000 hectares have been cleared from 2000 to 2005. Therefore only isolated pockets of forest remain in Sumatra; The Tropical Rainforest Heritage of Sumatra, TRHS, consisting of three national parks, is one of the last remnants of rainforest in Sumatra. One of the three parks is the Gunung Leuser National Park, GLNP, the only park containing all representative species of the north Sumatra bioregion.

Indonesia's natural forests also play an important role in global climate change. The elevated deforestation rate is highly contributing to Indonesian's carbon emissions, which is among the top five emitters of atmospheric carbon, posing a serious and increasing threat of climate change. Due to its high number of endemic species and delicate ecosystems Indonesia is one of the countries most vulnerable to climate change impact. Ironically, while Sumatran forests are extremely vulnerable to the threats of climate change, their loss is also a massive contributor to such climate change. Therefore, it is crucial to protect the natural environment while raising the awareness of local communities and authorities regarding the importance of preserving the forests. This project is contributing to Indonesia's efforts to address climate change, by increasing both adaptation and mitigation measures to climate change effects.

Together with mainland forests, Siberut Island, located of the west coast of Sumatra, has a unique Island ecosystem with the highest density of endemic primates per unit area found in the world. Its fragile island ecosystem is currently endangered by deforestation as the indigenous population of Siberut is changing from an environmentally sustainable subsistence existence, towards an environmentally unsustainable cash-oriented culture in which the fragile ecosystem of the island cannot survive.

Through this project UNESCO seeks to protect these two unique natural enclaves, which due to similar circumstances are undergoing serious threats, and where if no further action is taken, unique and endemic species are very likely to disappear.

Leuser:

Covering a total area of 1.094.692 hectares, GLNP is one of the largest national parks in Indonesia. This area is equivalent to the size of the Spanish Autonomous Region of Navarra, and represents more than 3 times the size of the Spanish national parks all together. The topography of the park varies from lower and coastal areas, located at sea level, to mountain areas with the highest peaks reaching approximately 2,500 m ASL. The major habitats in GLNP can be classified as mountain forest, alpine woods, primary dipterocarp lowland forest, swamp areas, seashore/beach forest and mangrove forest. Due to its rich ecosystems and biological diversity, GLNP was designated as a Biosphere Reserve in 1981 and has been declared a World Heritage Site in July 2004. GLNP harbors a wide diversity of fauna and flora species, amongst which several are exceptionally rare and seriously endangered (i.e. rhino, tiger, elephant and orangutan).

The WH committee in its 32 session (Quebec City, 2008) recognized the effort of Indonesian Government on implementing an Emergency Action Plan, EAP, to protect the Tropical Rainforest

Heritage of Sumatra, while urging to complete and fully implement the EAP in 2008. The committee highlights the effect that the threats, specially the encroachment, have in the degradation of this WH Site, and requests the Indonesian Government to take prompt actions to halt all the encroachment as well as ensure legal protection of this site.

During the last years, GLNP management has faced an increasing number of conservation and management challenges caused by human activities, including encroachment, illegal logging, poaching and conversion of forest for agriculture, degrading large areas in the park due to deforestation.

UNESCO Jakarta, with the support of the Autonomous Organization of National Parks, OAPN, Ministry of the Environment and Rural and Marine Affairs of Spain, is currently implementing the project: "Saving the Natural Heritage of Gunung Leuser National Park, Tropical Rainforest Heritage of Sumatra". The project pursues to mitigate the threats to the integrity of the Gunung Leuser National Park, by improving the legal, scientific, social as well as economic basis for the efficient conservation and restoration of the Gunung Leuser National Park. Under this project several lines of action are being implemented to protect the park, such as carrying out awareness and education campaigns to improve the local communities support to the park conservation, promote the law enforcement in the area, assess the potentials of ecotourism to provide social and economic benefits while ensuring environmental protection and a scientifically sound ecological restoration of lowland forest areas that are critical and threatened habitat for orangutan.

During the implementation of this project UNESCO has noticed that there are many factors that affect the integrity of the park, since some of the threats appear to be endemic and very difficult to deal with. The lack of economic incomes to the local communities, the existence of a high number of refugees and landless families, the decentralization process that give more power to local governments which put economic development before environment conservation, are some examples that show the complexity of the situation. These examples, added to the great extension of the park, show that law enforcement is not enough to effectively deal with the main threats that affect the park. In addition, some of the areas affected by these continuous threats include habitats critical for the orangutan.

One of the direct consequences of the Leuser ecosystem degradation is the reduction of the Sumatran orangutan habitat. The orangutan is the only great simian that lives out of Africa, in the past its distribution covered from China to the Indonesian island of Java, nowadays it only survives in the Indonesian islands of Sumatra and Borneo. With an estimated population of 6600 individuals, the Sumatran orangutan is classified by IUCN as Critically Endangered, indicating that orangutans living in the wild are in an extremely high risk of extinction, within the near future. Since 1900, the number of Sumatran orangutans is thought to have fallen by about 91%, with a rapidly accelerating loss towards the end of the twentieth century (McConkey 2005). The remaining orangutan population is fragmented, with the core of its range being Gunung Leuser National Park, where around 25% of the total population lives.

The orangutans inhabit primary forests up to 1,000 m ASL, where the fruit availability is higher and where they play a crucial role as seed dispersers. Orangutans are thus responsible in part for maintaining forested ecosystems that provide important environmental services to humanity, from water resources to climate regulation. These are the most accessible areas for loggers and agricultural encroachers and at this altitude the most valuable timber species grow. These forest conversion activities lead not only to the reduction in the orangutan habitat, but also to the fragmentation of the orangutan distribution areas, reducing the opportunity of interbreeding, which has negative affects on the survival of this subspecies. Animals are also illegally hunted and captured for international pet trade though its impact on the orangutan population seems to be low.

Siberut:

With a surface of 400,000 ha, Siberut is the biggest and most northern island of the Mentawai archipelago, located 150 km off the western coast of Sumatra, Indonesia. Being isolated from the mainland of Sumatra for more than 500,000 years, the island has undergone a specific evolution process that has resulted in a unique island ecosystem with high levels of endemism, especially among mammal species (60% of mammal species is endemic at some taxonomic level). Among its most impressive ecological characteristics is the presence of four endemic primates which constitutes the highest density of endemic primates per unit area found in the world.

The island's ecosystem is characterized by lowland forests, swamp forests and mangrove forests, and it is bordered by a string of coral reefs along the east coast. Due to its unique natural and cultural assets, Siberut Island was declared a Biosphere Reserve in 1981 and in 1993 the western part of the island, covering 190,500 ha, was designated as a National Park, in an attempt to preserve its lush rainforests. The National Park constitutes the core zone of the Biosphere Reserve. Despite all conservation efforts, Siberut's ecosystem is highly prone to environmental pressure due to its long term isolation and high endemism.

The geographical isolation of Siberut has also allowed its indigenous community, which represents 90% of the island's total population, to maintain a specific culture intricately linked to natural environment. In the past, the indigenous people's livelihoods depended entirely on the use of natural resources, which, through customs, was passed down from generation to generation.

During the last decades however, a rapidly changing world have encouraged local communities to shift from subsistent modes of production to a more cash-oriented resource management system, adopting thereby more destructive practices. This process has resulted in the degradation of the island's natural environment and a loss of biodiversity. In addition to the changing natural resource management systems, large-scale logging is putting additional pressure on the island's natural environment. While half of the island has been designated as a national park, the other half is divided by two large-scale commercial logging concessions.

During the last years, the Siberut National Park authorities and local conservation stakeholders have faced an increasing number of conservation and management challenges due to the increasing development pressure on the natural environment. However, an effective response to the pressures has been absent, as the Siberut National Park is suffering many of the typical problems faced by Indonesia's protected area authorities (i.e. weak management capacities, low education and motivation of staff members, poor communication skills, limited infrastructure and equipment).

In addition to the above pressure, Siberut Island has also suffered a series of destructive earthquakes during the last years. The last major earthquake, with a magnitude of 7.3, occurred on 13 September, 2007. Though the island ecosystem was not directly affected by the earthquake, the infrastructure and management capacities of the national park and local conservation organizations have been impacted almost beyond recovery. The massive damage to park infrastructure on the island and related management capacities has nearly halted the daily operations of the national park agency, increasing thereby the vulnerability for further degradation of the environment.

2. OBJECTIVES AND ACTIVITIES TO BE DEVELOPED WITHIN THE PRESENT VOLUNTARY CONTRIBUTION

The following activities are being implemented in Gunung Leuser National Park:

1.1.1. Conduct a population census and habitat analysis of orangutan in the park.

The project is conducting an orangutan population census in the Gunung Leuser National Park to obtain updated information on population numbers and distribution of orangutan inside the park. In addition to the census, a habitat analysis is being conducted identifying key orangutan-habitat, as well as comparing population numbers and distribution to habitat conditions. The results are expected to provide an in-depth analysis on the conservation status of orangutans in the park.

1.1.2. Identification of critically threatened habitat using remote sensing techniques.

Overlapping the findings of the population census and habitat analysis, and using remote sensing techniques with ground checks, the project is identifying critical orangutan habitat that has been degraded or is currently under threat. All data are being gathered and put into GIS, which constitute the basis for further in-depth ground investigations on the nature of the threats.

1.1.3. Conduct a series of field investigations (study) to obtain an in-depth analysis of the threats, including physical and socio-economic threats.

Using the GIS data produced under activity 1.1.2, a series of field investigations are being conducted to obtain an in-depth analysis of the threats. The threats are most likely to be of physical and socio-economic nature (e.g. road development and agricultural encroachment). An investigation team, aside from collecting primary data in the field, is also conducting a desk study. After compiling all information, a thorough analysis will be done to determine the nature of the threats, as well as (in the extent possible) identify solutions to the threats.

1.1.4. Disseminate the results of the action research to strategic stakeholders.

The project will disseminate the findings of the action research through an intensive consultation process and a stakeholder workshop in which possible solutions and strategies to overcome the threats will be identified. Participants include Ministry of Forestry, national park staff, members of local and international NGOs, and local governmental representatives. The meetings and workshop will also provide recommendations and guidelines for dealing with the threats, including at policy level.

1.2.1. Select a series of pilot sites based on the results of the action-research.

Based on the results of the action-research and taking into account other factors as priority, accessibility and possible success rate, the project is selecting select pilot sites, consisting of degraded or threatened orangutan habitat. The site selection is being conducted jointly with key-stakeholders, including national park authorities and NGO partners. One of the sites include the Sei Serdang area, where UNESCO is currently working to restore degraded lowland forest, which was in the past inhabited by orangutan population.

1.2.2. Develop a comprehensive strategy for intervention in pilot sites.

After the selection of the pilot site, a comprehensive strategy for the intervention is being developed. As the threats and problems in sites with degraded or threatened habitat are highly specific, interventions should be tailored-made and take into account local conditions. The data from the action-research will provide the basis for outlining strategies for interventions in the pilot sites. The strategies for intervention are being identified in a participatory manner with key-partners.

1.2.3. Implement tailored-made intervention in pilot sites.

As a result of the consultative process, tailored-made interventions will be implemented in the pilot sites, using strategies identified in activity 1.2.2. The interventions will consist of targeted and specific activities to reduce the threats to habitat or restore degraded habitat. Activities will include community awareness, law enforcement and habitat restoration.

1.2.4. Monitor and evaluate results of interventions.

The project will develop a mechanism to monitor the results of the interventions closely and strive to translate the lessons learnt into policies. For this purpose, joint evaluation meetings will be conducted by UNESCO and partner organizations. Encountered pitfalls and successes will be identified and recommendations put forward to improve the interventions if needed. Such in-situ evaluation process is important as it seeks to rationalize the project strategy and debate on the lessons learnt with a wide range of stakeholders.

1.3.1. Develop pro-conservation-based policy to support conservation of Sumatran orangutan in Aceh and North Sumatra.

The project will secure political support from both province (Aceh and North Sumatra) by providing academic and legal draft of Separate Provincial Regulation and/or Joint Governor Decree to support Orangutan Conservation Action. Such regulations do not yet exist to follow up Ministerial of Forestry Decree on Orangutan Conservation Action Plan. Local regulation would be a good starting point to implement OCA at province and district level. A series of meetings and a workshop will be conducted to absorb stakeholders' concern on legal draft.

1.3.2. Develop and produce multi-media awareness kit.

This project will develop a series of cartoon stories about orangutan, both printed or VCD format. The product will be distributed among elementary schools around GLNP and nearby cities. The movie will also be broadcasted in local or national television to improve people's awareness and to get more social support from broader audience. The product will highlight the status and behavior of the orangutan, and an example of activities which can be done by stakeholders to involve and support orangutan conservation action.

1.4.1. Facilitate the establishment of taskforces.

The Indonesian Government, through the Ministerial of Forestry Decree No 48/2008, has established the mandate to set up a taskforce to reduce conflict between human and wildlife (including orangutans). The taskforce will assist BKSDA to evacuate/rescue injured wildlife/people due to the human-wildlife conflict, assist enforcement agencies to investigate conflict, and to act as a rapid

respond unit. UNESCO will facilitate the establishment of this taskforce through a series of study, meetings, and a workshop to identify players, prioritized conflict areas, and empowered the taskforce. UNESCO will also support urgent necessary infrastructures.

1.4.2 Develop a knowledge base to mitigate the human-wildlife conflict.

Local qualified veterinaries in the districts surrounding the national park will be identified to assist the orangutans and other wildlife injured due to the human-wildlife conflict. Several training modules will be developed to improve the veterinaries capacities in assisting the wildlife injured. A hotline phone number where the local communities can report the events of conflict will be established, the local veterinaries will act responding to these reports. The local veterinaries will be coordinated by the taskforce mentioned above. Community meetings as well as technical knowledge training activities will be carried out to raise the awareness of local people on how to prevent and avoid the human-wildlife conflict. Several awareness leaflets, stickers and signposts will be produced and distributed in targeted areas where the conflict is more intense.

In Siberut Island UNESCO will implement the following activities:

2.1.1 Introduction course on GIS and Database.

The training will be carried out for Siberut National Park staff and partner organizations working in conservation, such as NGOs and community based organizations. A GIS and database is currently unavailable to monitor the situation and threats in the park, and develop appropriate interventions. The staff members of park and partner organizations lack the basic skills and understanding on the use of database and GIS technology. The training aims at raising the awareness and understanding of SNP and partner organizations on the possible applications of database and GIS to improving the monitoring and efficient protection of the national park.

2.1.2 Participatory training on cultural appropriate approaches.

In many areas on Siberut a latent conflict has emerged between the indigenous communities (90% of the island's population) and the National Park staff (90% from ethnic groups outside the island) due to a lack of culturally appropriate information, communication and community outreach. A training on issues as anthropology, local communication mechanism and appropriate community outreach methods will be carried out with the park staff and partner organizations with the aim to improve the relationship between park and local peoples. The training will also help park staff to achieve genuine communication with local communities and ensure a local feeling of ownership over the national park. It is expected that after the training park staff will be able to improve the local communities' perception of the national park and conservation in general.

2.1.3 Participatory training on law enforcement.

The Siberut National Park is located next to production forest, where currently two large scale logging concession operate. The logging companies have a track record of encroaching into the national park, and cutting high value timber in the national park. Besides, illegal logging, wildlife trade is also a significant threat to the park's integrity. Birds, primates and pangolins are often shipped illegally to the mainland of Sumatra. The lack of knowledge of local police and forest rangers in regard to legal

regulations on illegal logging and wildlife trade, often lead to ineffective law enforcement, without the culprits being sanctioned. One of the other challenges often faced by forest rangers and local police is on how to conduct law enforcement in an indigenous setting. As indigenous people regard the national park as their land, restrictive law enforcement should be avoided, and solutions should take into account traditional conflict resolutions schemes. Based on the above issues, a participatory training will be organized for forest rangers and local police, aiming to achieve two results, i.e. (1) Improved knowledge and effectiveness on how to deal with external threats such as commercial logging, encroachment in the park and wildlife trade, and (2) improved knowledge and skills on traditional conflict resolution and conflict management. The second component of the training will involve local community representatives and have a participatory character.

2.2.1. Workshop on the establishment of village regulations regarding sustainable natural resource management.

The current national decentralization policies provide the possibility to achieve some level of autonomy for villages to formulate regulations which may affect the conservation and sustainable use of natural resources. Based on the current decentralization process, this activity aims to develop and put into practice a new decision-making mechanism for villages in Siberut that integrates customary ecological knowledge and practices of local communities with planning for conservation and sustainable development. To achieve this, a workshop will be organized to disseminate and discuss the possibility to formulate regulations at village level regarding the conservation of biodiversity and sustainable use of natural resources, based on customary and scientific knowledge. The workshop will target mainly local communities, and help to promote the conservation and sustainable management of natural resources by local communities in line with national legislation and community-based customary laws.

2.3.1. Training Activity on community-based ecotourism and agroforestry

In order to prevent increasing poverty in the transfer from a subsistent to cash economy, and to explore economic opportunities without affecting the customary resource management, UNESCO will carry out specific training activities on income-generating activities such as eco-tourism and agroforestry that concentrate on learning-by-doing methods. These training activities will include marketing, environmental management, conservation, customary law and basic human rights modules. Together with the training and extension, follow up and advisory services will also be provided. Additional community meetings will act as forums for sharing experience and ideas on the topics of the training and sustainable development in general.

2.4.1. Meetings and workshop on developing appropriate awareness strategy

Environmental awareness programs implemented by the National Park and partner organizations are often misunderstood by communities because they are based on generic, centrally developed concepts, focusing on scientific knowledge, without taking into account local environmental perceptions and Customary Ecological Knowledge and Management Systems. A number of activities will be organized, including community meetings and a workshop in order to support the development and implementation of a culturally appropriate environmental awareness strategy that is based on both, scientific and indigenous knowledge systems.

3. FINAL REPORT

The current report covers the full activities carried out under this project, which includes the following budget codes: 514INS2003 and 514INS2004. This project commenced on January 2009 and finalized on September 2010.

This project has focused in two areas, the Gunung Leuser National Park and the Siberut National Park.

In Gunung Leuser National Park:

Since 2005 and with the support of the Spanish Government, UNESCO has been working together with the GLNP, to improve the management system and conservation status of the national park. Under this project UNESCO has continued its efforts in promoting the conservation of the natural environment, with special focus in one of its main assets, the Orangutan. Through the last decades, the Sumatran Orangutan population has rapidly declined through the last decades, and it is estimated that at least 25% of its current population, on around 6,000 individuals, live inside the GLNP. Therefore, the protection of the natural environment of this national park is key for the effective conservation of this critically endangered species. At the same time, being the orangutan a key component of its habitats, ensuring the conservation of the orangutan will highly contribute to the integrity of its home range.

To ensure the adequate scientific approach of this project, UNESCO has hired Ms. Suci Utami as a Special Adviser for Orangutan Conservation. The role of Ms. Utami has been to work closely with GLNP and other project partners in effectively implement the current project to safeguard critical orangutan habitat within the national park. Ms. Utami is one of Indonesia's leading scientists and primatologists on Sumatran Orangutan and has been working in collaboration with national and international NGOs, as well as government authorities in conducting research and conservation initiatives to safeguard the orangutans. Ms. Utami is a recognized orangutan expert, whose deep knowledge on orangutans, as well as on the number of institutions and NGOs working in this field, has been crucial to achieve the project objectives.

1.1.1. Conduct a population census and habitat analysis of orangutan in the park.

Given the dimensions of GLNP (1.094.692 Ha), in this project UNESCO has prioritized the area of the park that is located in North Sumatra Province, in Langkat District. This area is known as one of the main habitats of the orangutan in the national park, where concrete threats are posing big challenges to their survival. Through this census, UNESCO and the implementing partner, PanEco have identified the most populated areas, the main distribution, and the main threats. To this aim, PanEco and UNESCO have worked together to define the most adequate methodology to carry out the census, following a scientific and comprehensive approach.

In the first place, UNESCO and PanEco identified the components of the team in the field. In order to select the most prepared staff, as well as involve local people in the survey activity, it was agreed that the team would be integrated by those who participated in an orangutan survey training organized by Great Apes Trust International and funded by GRASP programme. Prior to the surveys, the team received training on data collection to ensure all members understood the field techniques and

implemented them following standardized methods.

To determine the orangutan density, orangutan nest counts have been conducted using standard line transect methods, to first estimate densities of nests and then convert these to densities of orangutans themselves. This method uses the fact that orangutans, like all great apes, construct nests, both at night and during daytime. Using nest counts instead of live encounters with orangutans is preferred due to the low density of orangutans, which makes density estimates based on live encounters a very time consuming exercise.

During nest counting two experienced observers slowly walk on straight line transects and record the perpendicular distances of all identified nests from the transect. Nests have been counted while walking the transect in both directions as this leads to higher nest counts and therefore more accurate results.

Nest countings have been converted into nest densities and then orangutan densities using the following formula:

$$d = N / (L * 2 * \mu * p * r * t)$$

in which :

d = orangutan density (individuals/km²),

N = number of nests observed along the transect,

L = length of the transect covered (km),

μ = estimated width of the strip of habitat actually visually covered (km),

p = proportion of nest builders in the population,

r = rate at which nests are produced (n/day/individual), and

t = time during which a nest remains visible (in days).

Additional information relevant to the orangutans has been collected during the transects surveys, such as:

Nest decay

Because nest decay is the parameter that shows the largest variation, it would ideally be measured anew at each survey location. This is, however, not financially or logistically practical as it takes several months (even years) to collect the necessary data. Therefore the field team has selected key areas (Marike, Sikundur, Manggamat, Kluet) on the basis of their forest type (peat swamp or dryland forest) and parameters such as altitude and location in the National Park. By obtaining nest decay estimates for several representative areas, the survey can more accurately estimate the nest decay rate to be applied on each survey locations. Two main methods have been adopted for determining nest decay rates:

A) At each location one monthly visit is being made during one year. During each visit a minimum of 15 fresh nests are being located and the tree they are in is marked with a tag and the coordinates are registered. During the last visit all nests will be re-visited and it will be determined whether the nest is still present or have disappeared. Logistic regression models will be applied to estimate nest decay.

B) At each location a transect has been established, and all nests along it are being recorded (location, tree species if known, distance from the transect, age-class, height, position in tree).

Subsequent visits allow all new nests constructed that month to be identified and marked, meaning that over time it will be possible to directly monitor all these nests until total disappearance.

Large fig density

Large strangling fig trees provide an indication of the orangutan minimum food availability in a forest, since these trees are a fallback resource for orangutans in periods of lean fruit availability. To determine large fig tree density one observer has recorded strangling fig sightings by recording the perpendicular distance from the transect to each fig tree. Two classes of fig trees have been distinguished:

1. Fig covers the host tree completely, but the host tree is still alive;
2. Fig covers the host tree completely, but with the host tree being dead.

Additional data collection

Along each transect all **fruits** found fallen, on the trail, have been counted and categorized as soft-pulp fruits or non-soft pulp fruits to obtain an indication of the percentage of fruits available that are the fruits most commonly preferred by orangutans (namely “soft-pulp” fruits).

A simple **categorization of the forest** has been made while conducting transects. At every 100m along their length, the forest has been visually assessed and classified as either primary or logged forest, or non-forest.

At each transect location the **soil pH** has been also registered.

Orangutan survey results:

Between October 2009 and the March 2010 the survey team conducted orangutan surveys in the Gunung Leuser National Park in North Sumatra Province and one district within Aceh Province. A total of 14 of nest transect surveys were conducted and 6 additional transects were established for the long term monitoring of orangutan nest decay rates.

Orangutan nests were observed on all (100%) of the transects. This shows clearly that orangutans do still occur in all of those regions of the Park so far surveyed that were previously already identified as being part of the species distribution. Interestingly, the survey also indicates that the currently accepted map of the orangutan’s distribution in Sumatra needs some refining, as evidence of their occurrence was found also in a few transect locations in the Park that were not previously recorded as part of their range, even though the changes to the overall distribution map would be only marginal. These few additional locations were in areas slightly above 900 m asl, which were excluded from previous maps of the species distribution as orangutans are only rarely encountered at such altitudes. The existing maps are therefore slightly conservative, since significant viable populations remain unlikely above these kinds of altitudes, even if a few individuals do pass through from time to time.

For the current surveys, we opted to make a cut-off point at 1500 m asl, and not to survey areas

above this. This therefore has provided a much better insight into the role of forests between 900 m and 1500 m asl and has allowed us to get a more detailed understanding of the orangutans distribution, density and abundance in these higher altitude forest zones. Indeed, the survey results already demonstrate that orangutans do use these areas. In fact, the number of nests per kilometer of transect are among the highest so far encountered during the survey work. However, it is important to remember that the numbers of nests per kilometer is not necessarily equivalent to, or even proportional to, the actual nest density in an area, and must therefore be interpreted with extreme caution. Several factors need to be taken into account when converting numbers of nests per kilometer into nest densities, including the distances of the nests from the transect trail and the decay rate of the nests themselves (often much slower at higher, colder and wetter, elevations). It was in fact expected for this reason that the number of nests per kilometer would vary tremendously between localities and explaining this variation will require careful analyses of the results, which will only be possible once all data collection has been completed. Nevertheless, the surveys conducted so far are already indicating that some careful refinements to the current orangutan distribution map are justified.

In two locations transects were established in order to conduct long term nest monitoring work. Such monitoring of nests is essential to determine the rate at which orangutan nests in a given region decay, which in turn is itself a critically important factor in estimating nest and orangutan densities. This work is being carried out by Khoirul Umri from Universitas Sumatra Utara (USU). These data are being collected each month for at least 1 year before proper analyses can be conducted and so it is not possible to present the results of nest decay rate estimation in this report.

During the field study, the team has also recorded the presence of other relevant species encountered during the surveys. In total, 24 animal species were either directly seen or foot prints and vocalizations registered: 16 species of mammals (including five primate species), birds, reptiles and amphibians.

Based on the study findings, the most significant and worrying threat to orangutans in the GLNP appears to be habitat loss and degradation. In two areas of the Park within North Sumatra Province road development was found. One of these roads already cuts off and isolates a small part of GLNP and continuing development of the other road will eventually cut right through GLNP as well. Together these roads will chop up the eastern wing of the Park into three much smaller sections. The "East Leuser" orangutan population will likewise be cut into three fragmented and much smaller populations, at least two of which will almost certainly no longer be viable. This is in part due to the lack of clear boundaries of the GLNP, which makes it difficult to determine if threats and other activities are actually occurring inside or outside the Park.

There were no direct reports of orangutan killing or hunting during surveys. There were reports of human orangutan conflicts, however, in which people were reported to use air rifles to chase orangutans and other primates away from farm crops. In activities 1.1.3 and 1.4.2. there is more comprehensive information about Human-Wildlife interactions and the subsequent conflict generated in certain areas.

The results of this study have been shared with the GLNP authorities in several meetings, and with GLNP and other relevant stakeholders in a workshop held in Medan on 7th and 8th June 2010. (see activity 1.1.4. for more detailed information).

Find the comprehensive report to the orangutan census in the Annexes.

1.1.2. Identification of critically threatened habitat using remote sensing techniques.

UNESCO's GIS expert, Rina Purwaningsih, together with UNESCO's Orangutan expert, Ms. Suci has analyzed satellite imagery from three set of years (1989, 2003 and 2009) to evaluate the changes on forest cover during the last 20 years in the whole extension of GLNP. These data has been overlapped with the field data of forest cover gathered during the orangutan census, as well as with the orangutan nest density.

The satellite images used for the analysis have been 30m resolution Land sat. The data obtained has shown a deforestation rate of 700-800 Ha per year (between 1989 and 2009) in the park, meaning a loss of 1.6 % of the total forest area of the park within the last 20 years. Satellite imagery analysis shows that the highest deforestation rates occur on lowland forests, which constitute the main orangutan habitat. The study has also shown that most of the Sumatran Orangutan populations are located in the proximity to villages adjacent to GLNP, which are located nearby the lowland forests, and this constitutes the main cause of human orangutan conflict, and one of the main threats to orangutan conservation.

The study has also reflected that most of GLNP boundaries are threatened by household agricultural encroachment (rubber, coffee, etc) and big scale oil palm plantations, this is caused in many cases by the unclearness of the park borders in many areas. Additionally, the road development in Bekancan, Lau Tembeluku (Sapopadang) and Lawe Natam, that is cutting the 'eastern block' of the GLNP and that has showed a high density of orangutan population, is worsening this situation. In addition, two enclaves inside the park, in Lau Tembeluku (Sapopadang) and Sembelin, are growing in size.

See the related maps in Annexes.

The results of this identification have been shared with the GLNP authorities in several meetings, and with GLNP and other relevant stakeholders in a workshop held in Medan on 7th and 8th June 2010. (see activity 1.1.4. for more detailed information).

1.1.3. Conduct a series of field investigations (study) to obtain an in-depth analysis of the threats, including physical and socio-economic threats.

UNESCO together with YAPEKA (Yayasan Pendidikan Konservasi Alam), has carried out a socio-economic study in the areas identified in the previous activities as the most prone to human orangutan conflict.

This study, which started on February 2010 and finalized on July 2010, has consisted on a socio-economic study in Langkat district, in the North Sumatra Province, with an emphasis on communities living adjacent to the National Park. The socio-economic study was specifically linked to the issue of orangutan conservation and forest degradation.

YAPEKA has gathered the baseline data on the socio-economical conditions of the local communities living in the vicinity of the GLNP, and including: local Knowledge, Attitude and Practices (KAP) in

regard to orangutans, local policies, local politics and decision-making mechanisms, ethnic background of population, demography, household economy, poverty, natural resources management, interaction with GLNP, etc.

This study was intended to provide in-depth understanding of the threats to the orangutan population, as well as to identify future conservation strategies to improve the protection of this species.

During the survey, 404 farmers in 11 villages living adjacent to the National Park has been interviewed. Some of the villages were also selected to collect qualitative data through participant observation and in-depth interviews.

From the socio-economic survey, it has been confirmed that in Langkat district, oil plantations and farmlands are located adjacent to national park, in some cases even inside the national park which poses a big pressure towards the orangutan habitat. This is caused by the unclearness of the national park borders, which is not an exclusive problem of GLNP, but also in many other national parks in Indonesia. Moreover, it is reported that most of production forests in the eastern block of GLNP have been converted into settlements and farmlands. This conversions have been granted by the district government in the area that have issued permits for large scale oil palm plantations. It means that most of the locations in the eastern block of GLNP have limited physical and natural buffer that prevent core zone against potential extractive activities. In addition, the study has also shown that the mass oil palm plantations in the eastern block of GLNP affect the clean water supply in some villages.

Based on the findings of the survey, and in order to counteract the lack of a natural physical buffer, it has been recommended to initiate a social process at community level in order to establish community buffers for GLNP. The study has emphasized that the initiation of social process will consist on a participatory process to define the village spatial planning, which integrates the protection for GLNP and the socio-economic development of Langkat District. The rural spatial and development plans would constitute basic components to produce Strategic and Land use Planning. This process should also count with the participation and support of the Langkat District government.

Although this study has a different approach to the human wildlife conflict survey, carried out by the Orangutan Information Center (OIC) (Activity 1.4.2.), both surveys have common areas of investigation. To avoid overlapping in the content of the studies and the sample locations, UNESCO has facilitated the communication and coordination between YAPEKA and OIC. Both organizations have shared their data and prioritized location of study. YAPEKA has focused in southern Langkat District, in Bekancan, Marike, Bohorok, Tangkahan and Bukit Lawang, while OIC has worked mostly in northern part of Langkat, in Trenggulun, Besitang, Sekoci, and Sei Lapan.

Although the survey was not completed by the time the workshop "Socialization of the results of the Orangutan survey as a follow up of the Orangutan Action Plan" was organized, YAPEKA presented the preliminary studies in this workshop to the main stakeholders.

1.1.4. Disseminate the results of the action research to strategic stakeholders.

On 7th and 8th June 2010, UNESCO, together with the GLNP, organized the workshop: "Socialization of the results of the Orangutan survey as a follow up of the Orangutan Action Plan". This workshop was attended by 36 participants, including GLNP staff, local government representatives, national

and international NGOs working on the orangutan conservation in GLNP, research institutions and community-based organizations.

This workshop presented the results of the three studies carried out in the North Sumatran part of the GLNP, namely orangutan census, orangutan habitat analysis and socio-economic study. The workshop, which was chaired by the Head of the GLNP, served as a platform, not only to present the results of the studies, but also to gather the main concerns of the local stakeholders in relation with the orangutan conservation and the human-wildlife conflict.

The outputs of the workshop have been recommendations to both improve the GLNP management in regards to the orangutan conservation and the most needed measures to mitigate the human-orangutan conflict in the most affected areas. The workshop has stressed the importance of reinforcing community mobilization initiatives to resolute the park conservation related issues and the human wildlife conflict in GLNP. In addition, it was highlighted the urgency to officially establish the borders of GLNP, since the unclearness on this regards is one of the root cause for a number of threats to the park's integrity.

1.2.1. Select a series of pilot sites based on the results of the action-research.

Based on the results of the orangutan census and the critical orangutan habitat analysis, as well as the preliminary results of the socio-economic study, UNESCO selected the priority areas to develop interventions to mitigate the human-wildlife conflict as well as to improve the orangutan conservation.

The selected areas have been: Sei Serdang and Besitang, where both the orangutan and human population are relatively high and there are records of high incidence of human wildlife

1.2.2. Develop a comprehensive strategy for intervention in pilot sites.

One of the main outcomes of the three studies carried out in the eastern block of GLNP (orangutan survey, orangutan critical habitat analysis and socio-economic survey), is that the degradation of orangutan habitat is the mayor threat to their survival in this part of the park. Therefore, UNESCO has carried out an ecosystem restoration activity in Sei Serdang, which was identified as a critical orangutan habitat.

During UNESCO's previous projects, UNESCO and GLNP have carried out several preliminary assessments and studies in order to define the best methodology to implement the ecosystem restoration. These studies included: socio-anthropological studies in the two villages nearby the restoration site, an analysis of the legal status of the land in and around the restoration site to identify whether it is located inside the national park, and an ecological study of the species composition and distribution in a 1 hectare-permanent plot forest surrounding the restoration site. This ecological study helped to develop an understanding of vegetation type, species composition and distribution, as well as the forest structure around the restoration site, which has been used to determine the type, abundance and distribution of tree species to be used for the restoration.

In the permanent plot, experienced botanists from FORDA (Forestry Research and Development Agency-Ministry of Forestry) and UNESCO developed a technical design of the scientific-based

ecological restoration. Identified species within the permanent sample plot belong to 34 families of plants, consisting of 130 species, which 22 of them are considerably dominant with the Important Value Index of more than 5%. Those dominant species have been prioritized as selected species for the restoration as they reflect the original ecosystem, they can easily adapt to the environment and can be easily found in the area. For the first steps of the restoration, fast growing species from Euphorbiaceae have been used as pioneers, and then followed by dominant species. This conducted study has been submitted to scientific forestry journals, in order to disseminate the methodology and share it with the scientific community.

Based on the results of the above mentioned studies, UNESCO, the GLNP and FORDA (Forestry Research and Development Agency-Ministry of Forestry) defined the most adequate strategy for the ecosystem restoration, not only in terms of the species used, but also in involving local community members. One restoration team, consisting of 7 people, 5 villagers from communities living near the restoration area and 2 staff from GLNP, has been set up permanently in the restoration site, and has been in charge of monitoring regularly the planted trees, replacing those that have died and taking detailed information about the growth of those that survive.

In addition, UNESCO and GLNP have continued the monthly monitoring activities, recording two parameters on each plant: the trunk diameter and the height of the plant. Moreover, the updated information gathered through these regular monitoring is being recorded in a database specifically designed for the restoration activity. This database includes information such as: date and size of planting, location, name of species, growth rate since planting... The database also compiles information regarding fauna registered in the area, such as wildlife footprints, bird sounds or direct viewing. The database constitutes a strong tool for future analysis of the growth and survival rate of each species.

Although the results of this activity will require at least 4 years drawing conclusive results, there are already clear signs of its success, such as the planted trees mortality rate (below 20%) and the increasing transit of wildlife in the area. Up to date, the ecosystem restoration site has a collection of at least 50 plant species. After almost 2 years of ecosystem restoration activity in the area, FORDA, UNESCO and GLNP are sending a team of expert botanists to analyze the preliminary results of the restoration activities.

There has also been an additional factor that has affected the restoration success. During the early planting period, the restoration team introduced seeds from an exotic species, Trembesi (*Albizia saman*), – a fast growing species originally American, but widely used throughout Southeast Asia for its timber. After noticing this issue UNESCO and GLNP have proceeded to remove all the specimens of this species and to replace them with local species. Up to date, the seed replacement has covered at least 70 percent.

Overall, the restoration and continuous ground presence of the restoration team in the field has significantly reduced forest crimes including illegal logging and encroachment around Sei Serdang area. The sound of chainsaws from neighboring forest is no longer heard from restoration site. At the same time, wildlife presence has been recorded nearby the restoration site, e.g. Thomas leaf monkey, orangutan, pig-tailed macaque, Sumatran elephant, bearded pig, and hornbills. This wildlife was not registered in the past decades in this area, due to forest disturbance.

1.2.3. Implement tailored-made intervention in pilot sites.

This activity has been fully implemented, as it has been described in the 1.2.2. Activity.

1.2.4. Monitor and evaluate results of interventions.

UNESCO, in collaboration with its implementing partners, has regularly monitored and evaluated the implementation of the tailor-made interventions. UNESCO and GLNP have set up a team that communicates on a weekly basis and that meets on a monthly basis, to ensure the adequate implementation of the field interventions. This team has been able to define any pitfall and react to it in a timely manner, in order to identify the best solutions.

1.3.1. Develop pro-conservation-based policy to support conservation of Sumatran orangutan in Aceh and North Sumatra.

Orangutan distribution has been recorded in at least six districts within North Sumatra Province. Those populations are found in different kind of forests, such as conservation forest, protection forest, and production forest, among which the law and law enforcement mechanisms are different. At the same time, habitats for orangutan in those areas are threatened by encroachment, plantations, and other illegal forest activities. Consequently, when orangutans become displaced from the forest, they are forced to find food for survive, either in agriculture areas or in plantations, causing important economic losses for local communities, plantation companies and the government. Being the orangutans highly protected species which cannot be removed from their habitats as simply as other unprotected animals, human-orangutan conflict is considerably increasing in areas nearby the GLNP, and orangutans are targeted to be hunted, poached, or killed.

In 2004 the Governor of the North Sumatra Province issued a decree (No 522.51/2235) highlighting the need for species-specific working groups to initiate human wildlife conflict mitigation practices throughout the province. This later resulted in the Indonesian Ministry of Forestry Decree No. 48 in 2008 issuing a national decree to deal and mitigate the conflict, especially for orangutan. The Ministerial Decree should have been followed up by governor to support orangutan conservation, through policy intervention, but this is still pending.

In order to support such policy intervention, UNESCO has worked with an expert environmental law firm, SW & Partners, to develop an academic draft (the early stage of governor decree) to generate necessary action to be carried out by provincial and district governments in protecting the orangutans in North Sumatra Province.

To develop this academic draft, UNESCO and SW have carried out a preliminary study on strategic issues related to Sumatran Orangutan conservation, local policy needs and the national orangutan action plan. SW and UNESCO have also met with relevant stakeholders at national and provincial level to gather a comprehensive perspective about conservation and legal issues of Sumatran Orangutan in North Sumatra.

Following the desk study, SW has held meetings with key government and non-government institutions at provincial level in North Sumatra Province. Two major government institutions have been visited to collect data and information about orangutan conservation issues and policy need, namely the Legal Division of North Sumatra Governor Office, Provincial Forestry Service, and the

representatives of central government e.g. North Sumatra Nature Conservation Agency and Gunung Leuser National Park. Provincial-based NGOs have also been consulted to complement and provide their perspectives towards the current situation in the field. Additionally, several key institutions at district level have been visited to identify local problems and generate site-specific solutions. The project has focused on the districts where orangutan population has been previously recorded by scientists.

In order to generate inputs from stakeholders in creating a regulation to support biodiversity conservation, UNESCO, SW, the Environmental Agency (BLH) for North Sumatra Province and the Sumatran Orangutan Conservation Forum organized a panel discussion in Medan on 8 July 2010. The meeting was attended by 40 participants, representing provincial and district government within North Sumatra, international NGOs, and local conservation NGOs. In this meeting, the project partners presented the background, philosophy-sociology-and legal justification of the provincial government regulation draft and highlighted the new opportunity for provincial government to improve their roles within a new regime of environmental protection and management, as indicated by Environmental Act No. 32/2009. It was stated that despite the major role of BKSDA and the GLNP Authority (as representatives of central government) to manage biodiversity, local government also has the responsibility and mandate to manage environment, including biodiversity. Therefore, the local government needs to develop a Environment Management and Protection Plan, Strategic Environmental Studies, Land-used planning and middle-and long term development planning.

The participants to the panel discussion also stressed out the importance of law enforcement, highlighting that the development of a more conducive environment for wildlife protection was not sufficient if the enforcement agencies don't take it into actions. They also noted that it is a great challenge to develop implementable and enforceable regulations when enforcement agencies, relevant authorities, politicians, and communities are not aware the importance of biodiversity to our life.

The panel discussion concluded with the agreement of the participants on regards the content of the academic draft. The academic draft supports the establishment of Human-Wildlife Conflict Taskforces, and encourages the Government of North Sumatra to establish these taskforces. It also promotes the mediation and conflict resolution related to encroachment of conservation sites, highlighting the responsibility of the provincial government to mediate in these conflicts. The draft also considers the importance of community involvement and recommends developing a provincial regulation to promote the active involvement of local communities in the conservation of the natural environment and the biodiversity.

1.3.2. Develop and produce multi-media awareness kit.

In order to develop a conducive environment for pro-orangutan conservation in North Sumatra Province, UNESCO has complemented the pro-conservation policy development efforts with a public outreach campaign. This campaign is aimed to improve the awareness of the young generations, specifically those living surrounding the GLNP, regarding the importance of conserving the Sumatran Orangutan. In order to achieve so, UNESCO has produced an 8-minutes 3-D animation film for elementary school students, in areas nearby the GLNP.

To this aim, UNESCO has hired a professional scriptwriter, with long experience in producing multi-

media materials for children, Ms. Vantiani. Ms. Vantiani has worked closely with the UNESCO team in developing a story that raises the awareness of the audience regarding the importance not only of the orangutan, but also of the GLNP and its whole wildlife. Given the age of the audience, 10-12, UNESCO has developed the script combining both educational components, as well as adventurous moments, in order to gain the schoolkids interest and attention. The messages conveyed, cover a wide range of topics that include: good practices when visiting the national park, the importance of preserving the natural environment, the human-orangutan conflict, ways to mitigate it, the importance of orangutan conservation and inviting children to contribute towards conservation. The draft of the script has been sent to UNESCO's partners on orangutan conservation (PanEco, OIC, YAPEKA), to gather their inputs both in terms of environmental awareness messages to include in the film, as well as the scientific information about the orangutans included in the film (orangutan movements, voice, behavior...).

For the 3-D film production, UNESCO has carried out a wide search for the best partner in the animation film sector in Jakarta, and has selected Ruang Rupa as the production house. Ruang Rupa is a non-profit organization, with 10 years experience in developing awareness raising materials in a broad range of formats, including films, songs, books, comics, etc. Ruang Rupa counts with a multidisciplinary team that is committed to produce high quality products with non-commercial purpose. UNESCO and Ruang Rupa have teamed up to produce the film, with a balanced combination between scientific-awareness raising components and the adventurous components.

The film titled "Tamanku adalah Temanku" (The park is my friend) tells the adventures of three kids - Togi, Mian, and Dion - in their effort to save their beloved Gunung Leuser National Park (GLNP) from an assortment of threats. This tropical treasure trunk of plants and animals - Sumatran tiger, Sumatran Elephant, Sunbears, and the Orangutan - is seriously threatened by illegal logging, hunting, fires, and palm oil plantations. The kids race against time to save a baby orangutan from getting into the hands of illegal traders. And, in the process they discover the wonders of their rainforest.

The animation film, is being screened on the schools nearby the national park, and additionally it is planned to be screened in the 1st Indonesian Science Film Festival, in Jakarta, in November 2010. This Festival is organized by the Goethe-Institut Indonesia in cooperation with UNESCO, the Indonesian National Commission for UNESCO, the Universitas Paramadina, the German Embassy and the French Embassy in Indonesia, several private sector business, and is endorsed by the Ministry of Education and the Ministry of Research and Technology. This Science Film Festival is targeting school children between 9 and 14 from the wider Jakarta area, and will constitute a great opportunity for UNESCO to showcase this film to a wide public and raise the awareness not only of the kids living in the nearby to the park, but also in Jakarta.

1.4.1. Facilitate the establishment of taskforces.

For this activity UNESCO has closely worked with the Orangutan Information Center (OIC), an experienced NGO working in GLNP and adjacent areas to both protect the wildlife species living there, as well as to contribute to develop sustainable practices that help improving the local communities livelihoods.

To this aim, UNESCO and OIC have worked together to establish an specialized Human Orangutan

Conflict mitigation team, the Human Orangutan Conflict Response Unit (HOCRU). The team consists of six local staff, all of whom were once local farmers, and one international expert on HOC. The team regularly monitors for conflict in areas prone to crop-raiding by Orangutans, and through the use of a Geographic Information System (GIS) programme, identifies and maps key conflict areas of HOC in and around the GLNP. The unit is responsible for investigating, assessing, enumerating (assessing the level of any crop loss or damage; this is necessary to determine what has actually been lost, as local farmers have a tendency to overstate the problem) and mitigating any reported instances of conflict between local farmers and orangutans. .

Whenever it is determined that an orangutan in a conflict situation needs to be translocated, the HOCRU works in conjunction with the Sumatran Orangutan Conservation Programme (SOCP) who have the necessary skills, equipment, and infrastructure for conducting orangutan rescues.

To facilitate this, the HOCRU has established a toll-free Short Messaging Service (SMS) center to receive and compile data, and ensure the relevant species-specific mitigation response unit act on reported instances. This also serves as the single conflict data collection point, which are included in the database specifically created for reference purposes. The SMS center was established and activated on the 1st July 2010. Up to September 2010 when the agricultural fruiting period was done, the SMS Center has received 17 HWC reports. The small number of reporting was identified as the short period between activation and agricultural fruiting season. However, to date, over 300 farmer contact details, including mobile phone numbers, across Eastern block of GLNP stored in its memory.

1.4.2. Develop a knowledge base to mitigate the human-wildlife conflict

In Besitang area, in the north-east of the park, UNESCO has collaborated with the Orangutan Information Center (OIC), a long time experienced NGO, to gather and increase the knowledge on Human Wildlife Conflict, The final aim of this activity is to develop the Standard Operating Procedure (SOP), with best practice mitigation methods for Human Wildlife Conflict (HWC) mitigation.

In order to develop the SOP with best practice mitigation methods for Human Wildlife Conflict (HWC), a demographic and socio-economic survey has been conducted by the OIC. Information regarding the types, patterns and methods utilized by local farmers for dealing with Human-Wildlife Conflict were collected during the survey in ten villages in three districts in North Sumatra Province (Eastern block of GLNP); namely Besitang, Sei Lapan and Bahorok.

On the early stage of the survey, a pilot study was conducted in Halaban village, a village similar in demographic and socio-economic terms to the other 9 study villages. During the pilot survey, 51 farmers were interviewed, comprising 38 men and 13 women with an age range between 23 and 88 years. Based on the pilot study, the questionnaires were revised to be used in the rest of the selected locations. Demographic and socio-economic variables were collected from each farmer or household head, in 10 villages, 23 sub-villages in three districts. During April-June 2010, a total of 681 respondents were interviewed, comprising 226 respondents from Besitang, 241 from Sei Lapan and 214 respondents from Bahorok.

The survey found out that the majority of the farmlands in the selected districts tended to be small, with an average extension of 2 ha and contained at least 14 edible crops for wildlife, including durian and jackfruit. Furthermore, it was reported that 95 percents of respondents suffered crop damage by at least thirteen types of wild animals. It was also registered that most farmers claimed primates,

including long-tailed macaque, pig-tailed macaque, Thomas leaf monkey and orangutans, followed by wild boar, were the most problematic crop pests. In addition, the survey stated that no single farmer reported as having problems with tigers. The survey affirmed in overall that primates were the most frequently (58%) reported group of wildlife to enter farmlands in all three districts, followed by wild boar (36%) and finally elephants (6%).

The survey also noted down that the level of human wildlife conflict slightly varies between districts, and that the orangutan conflict is different in each district. It has been found that there are no reports of crop-raiding by orangutan in Besitang and yet no farmer considered them as a crop pest. However, in Bahorok and in some extent in Sei Lapan, orangutans contributed to crop failure after wild boar, long-tailed macaque, short-tailed macaques, Thomas' leaf monkey and elephants. The crop raiding was reported mostly happening in the afternoon (45%), followed by evening (15%). However, it is reported that primates are more active in the morning and afternoon whereas non-primates were reported on the farmland in the evening.

Besides these findings, the survey also revealed how farmers adapted and mitigated the crop-raiding accident. The survey stated that 61% of the farmers reported to take no actions when having conflict with wildlife, followed by moving animal via noise (23%), laying traps (5%), throwing items at the animal (5%), using spot lights and fires (3%), poison (1%), shooting (1%) and others. The survey also reported that the use of dogs, scarecrows and catapults were considered as usual methods in guarding the farmlands; however the guarding methods are also species specific. Based on these findings, the SOP for HWC mitigation were developed.

The study noted that the local knowledge has been built from their empirical experiences in interacting with orangutans. In addition, it is reported that farmers perceives Sumatran Orangutan in two different contexts. In one hand, farmers categorize orangutans as a crop-raiding pest along with wild pig (*Sus scrofa*), Thomas-leaf monkey (*Pesbytis thomassi*), long-tail macaque (*Macaca fascicularis*), pig-tailed macaque (*Macaca Nemestrina*) and wild deer (*Cervus unicolor*). These animals cause economic losses, especially during the durian fruiting season, that need to be avoided by farmers. On the other hand, farmers are fully aware that orangutans are protected under government regulations. From these two different perspectives, farmers have developed deterrence techniques to minimize the crop-raiding accident.

As a follow up to the field survey to gather the local perspectives and practices on regards to the Human Orangutan conflict, UNESCO and OIC have collaborated in developing the Standard Operating Procedures In Mitigating Human-Wildlife Conflict. The purpose of this Standard Operation Procedure (SOP) is to establish a uniform procedure for the mitigation of the impact of the orangutan raiding agricultural crops in farmlands and plantations and minimize the economic hardship for local agricultural communities. UNESCO and OIC organized a multi-stakeholder workshop to identify the roles of key organizations responsible for HWC mitigation in each district and socialized the operational SOP needed for HWC mitigation. The relevant stakeholders on HWC mitigation participated in this workshop, including: the Nature Conservation Agency, the Gunung Leuser National Park authorities, and relevant NGOs working in the area, such as WCS, FFI, LIF, Vesswic and SOCP. The recommendations of the workshop included to establish a species-specific working group to develop a work plan for HWC mitigation and to discuss any HWC issues required for follow-up actions.

The Standard Operating Procedures (SOP) for best practice mitigation methods for HWC cover the steps to be taken starting from receiving the conflict report, verification by the staff deployed in the

conflict area, conflict identification, mitigation methods and the appropriate monitoring-evaluation process. The SOP emphasized the importance of carrying out species-specific mitigations.

At least five criterions of HWC have been identified and are as follows:

- Criterion 1: No conflict (verification took place and orangutan is not the conflict species);
- Criterion 2: Orangutan who 'sporadically' raid agricultural crops in farmland and/or plantations due to close proximity to a National Park;
- Criterion 3: orangutan 'daily' raid agricultural crop in farmland and/or plantation due to being isolated in these landscape;
- Criterion 4: orangutan living in captive situations;
- Criterion 5: No conflict was recorded but that there is potential for conflict due to the landscape setting and crop types and abundance grown.

Aside from establishing the SOP, the workshop provided follow-up recommendations. The Governor of North Sumatra should facilitate the establishment of the taskforces through a Governor Decree. The Governor of North Sumatra has already sent the draft of the decree to the Forestry Office in North Sumatra to be reviewed. Soon after the establishment of the taskforces at the provincial level, the establishment of the taskforces at district level will continue. Along with BKSDA and OIC, UNESCO are guiding the process of the issuing the Governor Decree.

In Siberut National Park:

In order to have a stronger presence in the field, as well as to have a better understanding on the local conditions in Siberut, UNESCO has hired Mr. Darmanto as the Project Assistant in Siberut Island Biosphere Reserve. Darmanto is very familiar with Siberut Island Biosphere Reserve, since he has been working there during the last six years in the field of conservation and sustainable development. During that period he has been able to develop a strong network, including local communities, NGOs, local government, National Park Authority as well as other institutions. Darmanto has also conducted extensive research in Siberut for the last years, and was awarded the MAB Certificate for Indonesian young researchers and environmental managers for sustainable development in 2007.

Mr. Darmanto's contribution to the project has been key since he has an extensive network in Siberut Island, including the National Park Authorities and staff, and the local communities and NGOs working in the island. His understanding regarding the local Siberut context, which includes the relations with the indigenous communities, has been crucial in developing culturally sound approaches for the project.

In addition, UNESCO has also established collaboration with PASIH, as the local counterpart in Siberut. PASIH is an NGO with long experience in working in Siberut Island and is closely coordinated with the local authorities and the Siberut National Park authorities in promoting the conservation and sustainable development of the island, in close relation with the indigenous communities.

2.1.1 Introduction course on GIS and Database.

This activity has been divided in two phases, the first one being **the GIS and GPS training** and the second one the **training on database management**.

GIS and GPS training:

The SNP staff limited capacities in collecting, managing and analyzing GIS information, together with the lack of resources have ended in out of date information (last data are from 2002) regarding forest cover and integrity, and therefore weak management systems. To overcome this UNESCO's GIS expert, Ms. Rina Purwaningsih, has conducted a GIS and GPS training activity in July 2009.

The **GPS training** was attended by 22 participants, belonging to Siberut National Park, and NGOs operating in the area. This training provided the first contact of most participants to GPS materials and concepts, and consisted in basic theoretical training as well as practical knowledge.

The **GIS training** was provided to 9 participants from the national park, as well as from local NGOs working in conservation in Siberut. The training consisted in GIS Introduction, Basic GIS Theory and GIS software managing. During this activity the trainer also assessed the main needs of the SNP in improving the performance of its GIS Unit, which has very limited resources. As a follow up to this assessment, and with the support of the Spanish Agency for International Cooperation for Development (AECID) UNESCO is assisting the SNP in acquiring the most critically needed materials to establish a well equipped and functional GIS unit, such as equipment and GIS software.

Database management:

UNESCO organized a two-day training on database management on 10-11 September in Padang. This training was attended by 12 staff of SNP and 2 staff of PASIH, and was provided by Mr. Bambang Suyikno from the Forestry Information Center (PIKA), Department of Forestry of Indonesia.

The purpose of this training was to increase the capacity of national park staff and PASIH staff in processing the basic data about national park and the Siberut Biosphere Reserve. This training has also aimed to find the right information systems including the social, cultural and demographic data, as well as data referring to flora and fauna. Since this has been the first contact of SNP and PASIH staff with data bases, the training has focused on basic knowledge and simple management of data base. The results of the training have been:

1. The trainees are familiar with the benefits and importance of data base for conservation and management efforts to protect biodiversity.
2. The trainees are familiar with the processes of producing and using data bases.

2.1.2 Participatory training on cultural appropriate approaches.

Together with the local counterpart in Siberut Island, PASIH, UNESCO has organized a training on appropriate cultural approaches at the SNP Office in Padang on 27-28 August 2009. The trainees have been 21 people consisting of 17 Siberut National Park staff, 2 staff PASIH, 1 staff from Walhi West Sumatra and 1 staff from Yayasan Citra Mandiri. All the participants to this training belong to the

conservation field in SNP.

The instructors for the training have been Mr. Rahmadi and Mr. Johannes Napitupulu. Mr. Rahmadi is a senior member from Walhi West Sumatra (NGO) that has long worked on the island of Siberut. Mr. Johannes Napitupulu has worked for UNESCO Office, Jakarta in the past and now works for Siberut Conservation Project (SCP) in collaboration with the Institut Pertanian Bogor (IPB) and the Primates Deutsche Zentrum (DPZ), in North Siberut. Both trainers have long experience in conservation in SNP working together with the local communities.

This 2 day training has followed a Forum Group Discussion (FGD) methodology. This methodology has allowed the participants to share their experiences in dealing with the local communities, the staff's perception of the national park, and the most common ways of communication with the local communities when implementing the activities. This participative training activity has put a strong emphasis finding culturally appropriated strategies through dialog for implementing conservation activities in Siberut Island.

This training has introduced to the participants to the concepts of ethnography and cultural diversity, socio-political dynamics of local Mentawai communities, traditional land use systems and the current societal change that is taking place in Siberut Island. The outcomes of this training have been:

1. National park staff and conservation workers in Siberut Island understand the local character and communication systems, the local socio-political dynamics, kinship systems, land use systems and other aspects of daily community life in Mentawai.
2. National park staff and conservation workers in Siberut Island can adapt to the culture of local communities in implementing conservation activities.
3. National park staff and conservation workers in Siberut Island can define tailor made strategies in facing the characters, attitudes, and the dynamic situation of the local community.
4. National park staff and conservation workers in Siberut Island understand that the concept of conservation can be easily understood by the local communities.
5. National park staff and conservation workers in Siberut Island can understand the social changes, lifestyle, and production patterns of Mentawai people.

During this training, UNESCO and PASIH have also distributed a guide to be used by the national park staff and conservation workers in Siberut Island when implementing conservation activities. This guide, that has been endorsed by the director of the SNP, includes the following information:

1. How to produce a Strategic Planning for the participant institutions which addresses the history of project locations and the history of conservation activities in the area.
2. How to conduct stakeholder analysis, including the local institutions, local elites, landowners, and local political dynamics.
3. How to collect updated information about the target area through the news in media, informal information and the official government.

4. How to develop an informal network in the area through all possible opportunities such as friendship, kinship and other social networks.
5. How to select the location, the activities implementation schedule, transportation methods and modes of accommodation.

2.1.3 Participatory training on law enforcement.

On January 2010, UNESCO's legal advisor visited Padang and Siberut to carry out an assessment on the law enforcement activities on illegal wildlife trade. This mission included the identification and analysis of the legal sphere, law enforcement system and the wildlife trade in Siberut Biosphere Reserve. To this aim, Mr. Suryadi collected information on wildlife trade, the trade networks, the actors and the trade routes. The identification process was carried out in the places suspected to be part of the wildlife trade routes in Siberut, namely Saliguma Village, Village Matotonan, Madobak Village, Village Katurai and Muara Siberut.

UNESCO involved all the relevant stakeholders in this identification, including: Siberut National Park, the Agency of Natural Resources Conservation (BKSDA) of West Sumatra, the private sector, the Police, officers of the port in Siberut and Padang, local military officials in Siberut and other parties related to the law enforcement in the field of biodiversity.

This assessment provided the following information:

1. Identifying the types of law violations related to biodiversity protection in Siberut Biosphere Reserve.
2. Identifying the actors and the patterns of law violations related to biodiversity protection in Siberut Biosphere Reserve.
3. Determine the types of law enforcement interventions and strategies related to biodiversity protection in Siberut Biosphere Reserve at all stakeholders level (communities, SNP, police, BKSDA) according to the socio cultural context of Siberut Island.
4. Identify the appropriate approach for the law enforcement training in accordance with the socio-cultural context of Siberut Island.

Based on the initial assessment carried out, a participatory training on law enforcement has been organized by UNESCO, PASIH and the SNP. This two day training on "Developing a System for Law Enforcement Schemes and Biodiversity Trade" was held in Siberut, in June 2010.

The aim of this training was to improve the participants' understanding regarding the legal framework related to conservation and wildlife trade, and their role in protecting it and controlling the illegal wildlife trade. UNESCO, PASIH and SNP invited all the relevant stakeholders in wildlife protection in Siberut, such as community representatives, Maritime Security Police, local Police, BKSDA and the managers of the Siberut harbor, which is the main port of exit for wildlife. Unfortunately, some of the most relevant participants, such as BKSDA representatives, were not able to join this training. To overcome this problem PASIH and SNP agreed to share the outcomes of the participatory training with BKSDA office in Padang.

The training followed a participatory methodology and presented the Indonesian legal framework in

regards to wildlife trade and how to apply it in the context of Siberut. It also emphasized that that the control and monitoring of wildlife trade needs to be done for the sake of sustainable use of natural resources, and that includes all wildlife, not only the protected species. This training highlighted the importance of all actors in Siberut to collaborate in preventing and controlling the wildlife trade. These actors include: the Siberut port officials, government officials,

The training also focused on designing strategies and activities for the near future. These strategies include:

1. Inform all the Head of villages and subdistricts in Siberut about the prohibition to capture wild animals.
2. Install signboards near the Siberut port informing on the protected wildlife in the island.
3. Engage the civil institutions and community representatives in the control and monitoring of wildlife trade. PASIH already has an extensive social network of collaborators which can play an important role in providing information about any wildlife trade.
4. Gather detailed information about the trading networks and combine it with the spatial data, which will be used as base information for SNP y BKSDA to take necessary actions to stop wildlife trade.
5. Engage the authorities in Padang (the entry point of wildlife in Sumatra Island from Siberut) in supervising the permits issued and the possible entry of non-permitted wildlife.

2.2.1. Workshop on the establishment of village regulations regarding sustainable natural resource management.

Prior to organize this workshop, UNESCO and PASIH conducted an inventory of the local of natural resources management rules at several villages in three districts (South Siberut, Central Siberut and Siberut Barat Daya). This inventory showed that some of these villages (i.e. Saliguma, Maileppet, Madobak) have rules on the use of natural resources and on waste disposal. These rules have been established based on local initiatives and local traditions inherited along the generations. The inventory of local rules was aimed to understand the context of the rules, its effectiveness and its links with the local government rules. The inventory of local rules has been used as a mean to conduct an informal approach to the influential local stakeholders and has the power to encourage and bring attention to policies related to biodiversity conservation.

On November 2009, UNESCO and PASIH organized a two day workshop on “Establishing village regulations regarding sustainable natural resource management”. The 20 participants to the workshop were representatives of villages in Siberut, local government officials and park staff. This workshop aimed to encourage local policy makers to come up with official regulations on natural resources management based on local knowledge and practices. This workshop also aimed to increase the capacity of village leaders and community leaders in formulating local policies in accordance with official rules so that the local rules are not in conflict with the national and provincial laws.

As a result of this workshop, the participants have a better understanding of the local official and customary regulations and have increased interest in gathering the customary laws on natural resources management at village level, including those transmitted through oral tradition. During the

discussion the main constraints to implement village regulations on natural resources management were identified, including:

1. The existence of customary rules that overlap with national regulations. The National law states that all land in Siberut is controlled by the Ministry of Forestry of Indonesia and by the district government while, the customary rule states that all land and natural resources on Siberut Island is controlled by the families.
2. The villages don't have a clear territory boundaries.
3. Rules derived from customary rules are aimed to Mentawai people, and are very difficult to apply to immigrants.
4. Customary rules are very difficult to apply and receive recognition from the government if Siberut communities are not officially recognized as indigenous people. Recognition of indigenous peoples is a complicated process in which the district government should have a leading role.

2.3.1. Training activity on community-based ecotourism and agroforestry.

This activity has been divided into 2 components, ecotourism development and agroforestry development.

Ecotourism development:

Under the ecotourism development component, UNESCO's ecotourism expert, Ms. Wiwik Mahdayani, visited Padang and Siberut in 13-22 January 2010. The purpose of this assessment was to identify the needs for training and capacity building for tourism stakeholders to develop ecotourism in Siberut Island. The results of this assessment have not only provided recommendations on the types of training for capacity building, but also medium-term strategy for PASIH and other stakeholders to develop ecotourism in Siberut Island.

During this visit, UNESCO's ecotourism expert met a number of stakeholders from the tourism sector, including the Tourism Office of West Sumatra, travel agents in Padang, Bukittinggi and Siberut, accommodation managers.

Through this assessment which was rescheduled due to the 30, September 2009 earthquake that hit the area, UNESCO has also analyzed the impact of the earthquake in the tourism market. It has been noticed that the impact of the earthquake over the tourism infrastructures in Padang and Siberut has been almost overcome. Nevertheless, it is still early to determine whether the number of tourists that visit the Mentawai archipelago has varied from other years.

The main tourists visiting the Mentawai archipelago are foreigners (Australians, Brazilians and Europeans), searching for the world-wide famous Mentawai beaches, known as one of the top ten surfing places in the world. The second market group for tourism are mainly Europeans (French, Spanish, Dutch, Belgian, and Italian) searching for the natural and cultural attractions to the island, such as jungle treks, waterfalls, indigenous peoples' culture...

During the assessment it was also evaluated the tourism network, both with stakeholders in Mentawai and outside, in order to provide recommendations on how to improve the cooperation and the

visibility of Mentawai as a tourism destination, outside the surfing market.

The Recommendations provided by the assessment included:

1. Capacity building for tourism stakeholders in Siberut, specially targeting PASIH and local tourist guides. This activities training should include: operational planning, tour packaging, networking.
2. Establish agreements between PASIH, as the agent for ecotourism development in the communities, and the local guides. PASIH should also build the capacities of the local guides in providing services to the tourists, making sure that there is fair and clear agreements with the local communities which are object for tourism, such as the indigenous communities.
3. Increase the visibility of community based ecotourism in Siberut. To achieve so it is recommended to:
 - a. Improve and translate to English the existing website <http://www.siberuthijau.org/>, which is managed by PASIH, but lacks on information and is only available in Indonesian.
 - b. Produce ecotourism promotion brochures for Siberut.
4. Establish stronger network with other tourism stakeholders in the area, such as the Local Office for Tourism, the resort managers in the surfing areas, the travel operators in Padang and other cities in Indonesia. It is also recommended to contact and join tourism associations at national level.

Following the assessment, UNESCO provided a 2 day training for PASIH staff and local guides, to improve the local capacities in developing and managing ecotourism. This training was carried out in Siberut on 3-4 June, and was attended by 8 participants: 4 PASIH staff and 4 local guides. The aim of this training was to improve the participant's capacities in developing community-based ecotourism adapted to the local conditions in Siberut, such as geographic isolation, lack of big infrastructures and the specific tourism segment that can be developed in Siberut.

This participatory training also increased the participants' capacities in preparing tour packages, while involving the local communities, which are the target of the ecotourism, developing cooperation networks with the communities and the local guides. During the training, it was also explored the strategy to promote ecotourism in Siberut.

The recommendations and follow up actions provided by the training were:

1. PASIH will explain to the indigenous communities the principles of sustainable ecotourism, the importance of preserving the natural environment for maintaining the ecotourism market and the concept of benefit sharing for community based tourism.
2. PASIH and the local guides will develop a cooperation framework, based on the principles of sharing benefits.
3. PASIH and the local guides will improve the cooperation with other tourism business in Siberut, mainly related to surf tourism.
4. PASIH will improve the existing ecotourism website www.siberuthijau.org. Currently this website is only available in Indonesian, while most of the tourist that visit Siberut are foreigners, mainly English, French and Spanish. Therefore, this website will be available also in English.
5. PASIH will create a brochure to inform about and promote ecotourism in Siberut.

Agroforestry development:

UNESCO and PASIH have conducted an agroforestry training activity in 2 villages in the districts of Taillelelu Siberut and Saliguma Southwest. Two 4-day trainings have been carried in collaboration with the West Sumatra Plantation and the Department of Agriculture and Plantation of the Mentawai Islands District. The two participatory trainings have been attended by a total of 80 participants from rural areas in Siberut. These trainings have achieved the following outcomes:

1. Increased the capacity of farmers in developing agroforest.
2. Farmers can grow commercially-oriented commodities that can be integrated with the local farming systems.
3. Increased the capacity of farmers to manage and conserve the soil.
4. Increased the capacity of farmers in using agricultural techniques such as fertilizing, maintenance, pruning, and post-production processes.
5. Introduced the concept of agricultural intensification so that farmers do not open new lands for farming.
6. Improved the capacities of the farmers, by providing knowledge on market mechanisms, environmental management, organic farming, household management and the ways to organize themselves in associations.

After the training the participants received a set of seeds and seedlings of local plants that have been successfully grown in Siberut in accordance with the ecological context of the Island. The areas to be planted with the seeds and seedlings provided, were designated in a participatory way together with the local communities and government.

After the training, UNESCO and PASIH continued monitoring the agroforestry activities in the pilot sites, in order to provide technical expertise and support to the farmers. The monitoring have been through two complementary methods: site visits to the farming areas and Focus Group Discussions with farmers that had participated in the training provided during the previous semester, with community leaders and with farmers that have not participated in the training. The results of the monitoring show that:

1. Despite most of the fields are outside the national park, some farmers have kept clearing land inside the borders of the national park.
2. Some of the cultivation areas are unproductive fields.
3. The farmers are selectively putting into practice the knowledge acquired during the trainings, by adapting them in accordance with the ecological, social and economic conditions in the communities, yielding a high growth rate of the distributed seedlings.

2.4.1. Meetings and workshop on developing appropriate awareness strategy.

UNESCO, PASIH and SNP have held a number of meetings, inviting relevant partners to define the best environmental awareness strategy in Siberut. These meetings have also explored the most adequate approach for the different stakeholders to collaborate for improving the conservation in Siberut Island. The main outputs of this meetings have been:

1. Stakeholders have a better understanding of conservation issues in Mentawai District.

2. Defined conservation awareness strategy, which involves and requires local communities to understand the importance of preserving their natural resources, to respect the legal framework and to use them in a sustainable and responsible way.

These meetings have been key, not only in defining the best awareness strategies, but also in developing a strong network among the several stakeholders.

As a follow up of this activity UNESCO also organized the Workshop "Collaborative conservation management and sustainable development in Biosphere Reserves with the Government Mentawai Islands' in Padang, in December 2009. This workshop was expected to take place in October 2009, but due to the effect of the September 30 earthquake, it was postponed until December 2009 to ensure the participation of all the relevant stakeholders. One of the main achievements of this workshop has been that it has brought together the SNP authorities and the local Mentawai government for the first time in more than 5 years. The workshop has allowed both parties to explain and discuss their visions and priorities in relation to development and environmental conservation in Siberut, and has opened an important communication channel between these two important institutions, which is key for the sustainable and environmentally-sound development of the Siberut communities.

The main recommendations of this workshop have been:

1. The local government of Mentawai and SNP need to improve their communication and coordination, and also with other stakeholders, in developing local policies related to sustainable development, taking into account the cultural and natural context of Siberut. The workshop participants strongly recommended the establishment of a Memorandum of Understanding (MoU) between Mentawai local government and the SNP Office, and other stakeholders in relation to nature conservation and sustainable development.
2. The SNP zonation needs to be revised, paying special attention to the traditional Landownership Systems.
3. Stakeholders need to constitute a forum where they can share their programs related to sustainable development in Siberut.

On 20-22 May 2010, UNESCO organized the workshop: "Conservation Strategies in Siberut Island". This workshop was attended by 21 participants with long experience in conservation in Siberut, from a biological and/or socio-cultural perspective. The participants to the workshop belonged to UNESCO, SNP, PHKA (Forest Conservation and Nature Conservation, from the Ministry of Forestry), Yayasan Citra Mandiri Mentawai, West Sumatra Walhi, PBHI (Legal Aid Society) in West Sumatra, Conservation International Indonesia, Indecon, Laggai Simaeru, Mentawai Care Alliance of Indigenous Peoples, Siberut Conservation Project, and the University of Newcastle. All these institutions have carried out their job in the context of societal and politico-economic changes in Siberut in the last 30 years.

The facilitator of the workshop was Mr. Wiratno, a representative of the Ministry of Forestry, who has long experience in conservation, not only in Siberut, but all around Indonesia, both from government institutions as well as from NGOs and research institutions. The participants shared their experiences in conservation in Siberut, taking into account the social and political aspects, the conservation agents, the main factors affecting conservation, and the strategies followed by each of them. Despite the big efforts carried out, both from the government and other national and international institutions, the environment on Siberut is still under big threats. The forest exploitations permits issued by the

Ministry of Forestry and the local government concessions are a big indicator that conservation is still a pending issue for Siberut.

The conservation strategies in Siberut can be divided into three major periods during the last 30 years:

1980-1990: Conservation focused in designating protected areas. This strategy succeed in establishing these areas, but not in protecting them from deforestation, since these areas were bordering timber exploitations, and due to the lack of personal to carry out conservation and law enforcement actions.

1990-1999: In 1993 half of the island was designated as a National Park. In that time several NGOs started ICDPs (Integrated Conservation and Development Programmes) on the economic development by promoting community participation, in line with the community-based conservation management discourse that was arising in the world at that times.

2000-2010: This period is marked by a willingness to involve communities more actively. UNESCO's project on Collaborative Management in early 2000s and other organizations job are good examples of these efforts.

Each of these periods has a different context, especially on the political context. The arrival of the democracy and decentralization process in late 90s and early 2000s have been the most crucial issues that have had a great impact into the Siberut dynamics, both in the society, as well as in the political and environmental spheres. The changing world has highly affected Siberut; the production patterns and market dynamics have quickly entered Siberut, and the local economy is rapidly shifting from subsistence agriculture and forest products harvesting, to more market oriented livelihoods. Therefore, conservation strategies also have to evolve with the changing reality. The recommendations given by the workshop to improve and update conservation strategies in Siberut have been:

1. Conservation organizations need to synergize their efforts with the Local Government of Mentawai Islands.
2. Consolidate the conservation movements in Siberut.
3. Provide conservation advocacy at various levels (local, national and international).
4. Integrate livelihood development when carrying out conservation program.
5. Local Government has to be incentivized to be fully involved in natural resources conservation.

To support these conservation strategies, the workshop participants propose to follow these steps:

1. To establish a Clearing House: as a center for information sharing and management (collection, processing and dissemination) as well as for inter-institutional communication.
2. To carry out regular meetings of the Forum: Siberut National Park will host regular meetings between government and non-government organizations.
3. To establish effective communication and coordination mechanisms between SNP, the Mentawai District Local Government and other stakeholders.
4. To take into account the lessons learnt into developing conservation interventions.
5. To coordinate among different stakeholders to raise funds

IMPACT OVER THE BENEFICIARY POPULATION

This project has had several impacts over the beneficiary population both in the Gunung Leuser National Park, and the Siberut National Park, including the local communities, the NGOs working in the two national parks, the park management units and the representatives of the Ministry of Forestry of Indonesia.

In **Gunung Leuser National Park**, the impact over the beneficiary population has been:

The increased knowledge regarding the orangutan population and distribution, and more specifically the in-depth socio-economic survey carried out in Langkat District, have raised the visibility of the human orangutan conflict that exist in certain locations in this district. Although previously there was information regarding this conflict, there was not scientific and measurable information that could help to tackle the problem systematically. Due to the project achievements, currently there is detailed information available that shows the nature of the human wildlife conflict site specific. This information, which has been widely disseminated, has been key in developing tailor-made interventions for each site, as detailed in activities 1.2.1.-1.4.2.

These interventions, which have ranged from ecosystem restoration, to awareness raising campaign and direct interventions to tackle the human-wildlife conflict, have had a positive impact in the population and have contributed to increase their support towards conservation activities. The project has put strong efforts in showing the local farmers in Langkat district, how dealing and mitigating the HOC can well be done through environmental and species protection, and has contributed to shift their perception that species protection has a negative impact in the local economy, specially in agriculture.

The establishment of the Human Orangutan Conflict Rescue Unit has had a very positive impact among the local farmers, which have seen their needs addressed and answered. This has contributed to increase their confidence towards the conservation programmes and to more proactively approach conservation organizations in order to communicate their needs and expectations.

At the same time, UNESCO has put strong efforts in improving the communication and coordination mechanisms between the project partners in GLNP, such as the National Park staff and authorities, PanEco, YAPEKA and OIC. Although these organization had previously worked together, there were some communication limitations among them, specially between the National Park and the three NGOs. Through this project, where each institution has put strong efforts to achieve the expected outcomes, the coordination between institutions has considerably improved. UNESCO and the partner organizations are currently producing a document which compiles all the information gathered through the studies (orangutan census, orangutan habitat analysis, socio-economic survey, mitigation methods survey), which will include follow-up recommendations to overcome the main threats both for orangutan conservation as well as for the socio-economic development of the local communities living in the study area.

In Siberut **National Park**, the impact over the beneficiary population has been:

The impacts of the current project in Siberut Biosphere Reserve can be divided into two categories: the impact over conservation institutions, such as the SNP staff and the NGOs working in the field, and the impact over the local population in Siberut.

The main impact over the conservation agents in Siberut has been the increased capacities in preserving the natural environment. The several capacity building and training activities have not only

increased the SNP, PASIH and other stakeholders technical capacities, but also has increased their knowledge regarding the specific socio-cultural context in Siberut, helping them to develop a more culturally sound communication strategy. One of the main achievements of the project in this regard has been the fact that the Siberut National Park and the local government of Mentawai have initiated to communicate after more than 5 years. The previous total absence of communication was caused by the misperception of the Mentawai Government that the national park prohibited any kind of infrastructure development within its limits, and the consequent rejection of the National Park concept, from the local government and communities. The participation of the Mentawai Government in the "Collaborative conservation management and sustainable development in Biosphere Reserves with the Government Mentawai Islands" Workshop, has constituted a keystone in including environment protection into the Mentawai development strategies. Following this workshop, UNESCO has continued to facilitate the coordination between the two parties.

The local communities have also benefited from the project through the alternative livelihood development activities. UNESCO has worked closely with PASIH to develop ecotourism and agroforestry as development initiatives that combine environment and natural resources conservation with improved livelihoods for the local people in Siberut. Although these interventions are made at small scale, their impact has reached both the farmers in the villages and the indigenous communities that live in more remote areas. The benefit of these activities is not only the increased incomes for the people, but also the increased awareness towards the importance of environment protection.

MEDIA COVERAGE AND VISIBILITY

This project has had a high visibility impact, both in Indonesia, as well as internationally.

In **Gunung Leuser National Park**, UNESCO has continued its efforts in improving the visibility of the park and the main issues related to its conservation. These efforts have covered both the local communities living in the park and adjacent areas, as well as national and international visibility.

At local level, UNESCO has strongly communicated with the partners as well as the local communities the project activities. All the materials distributed during the project, such as the HOCRU uniforms, workshop banners and other materials, include the logos of the Ministry of Environment (Ministerio de Medio Ambiente y Medio Rural y Marino - MARM) and the Autonomous Organization for National Parks (Organismo Autónomo de Parques Nacionales - OAPN) of Spain.

At national level, UNESCO has participated with the animation film "Tamanku adalah Temanku" (The park is my friend) in the 1st Science Film Festival in Indonesia, in November 2010. This Festival, which celebrates the 2010 Year of Biodiversity, is organized by the Goethe-Institut Indonesia in cooperation with UNESCO, the Indonesian National Commission for UNESCO, the Universitas Paramadina, the German Embassy and the French Embassy in Indonesia, several private sector businesses, and is endorsed by the Ministry of Education and the Ministry of Research and Technology. This Film Festival is targeting school children between 9 and 14 from the wider Jakarta area, and constitutes a great opportunity for UNESCO to showcase this film to a wide public and raise the awareness not only of the kids living in the nearby to the park, but also in Jakarta.

At international level, the Spanish contribution in this project has been widely informed. Juan Palop, the EFE news-agency correspondent in Indonesia, travelled to Gunung Leuser National Park in May 2010 and wrote an article and recorded a video informing about this project's achievements and the Spanish Cooperation. The article "España ayuda a Indonesia a censar la especie más amenazada de orangutanes" (Spain supports Indonesia in carrying out a census of the most critically threatened

orangutan species, attached in Annexes) has been published in a number of media both in Spain and South America. The news has also been broadcasted in video format, which can be found in the following link: <http://www.youtube.com/watch?v=4L-BGR3xbrc>.

Additionally, on March 2010 high representatives of the Ministry of Forestry visited the project site, in GLNP. During the visit, Dr. Ir. Haryadi, the Secretary of Directorate General of the Forest Protection and Nature Conservation, Ir. Adi Susmianto, Head of Forestry Research and Development Agency (FORDA), Dr. Ir. Y. Purwanto, Director of the Indonesian Committee for MAB Program and Dr. Ir. Ismayadi Samsodin, Restoration Ecologist of FORDA visited the project sites in Bukit Lawang, Sei Serdang and Tangkahan. The MoF representatives visited the main UNESCO project sites, and participated in several tourism activities that have been promoted through this project, such as jungle trek and elephant riding. The MoF representatives had also the opportunity to meet the local organizations working in Tangkahan in tourism development and gather their requests and impressions on regards to ecotourism. The visit was continued to Sei Serdang, where the ecosystem restoration site is located. With the assistance from the Forestry Research and Development Agency, MoF, the delegation received comprehensive information regarding the ecological restoration methodology applied as well as the results that have been achieved so far. Given the good results of scientifically-based forest restoration in the project site, the Indonesian Ministry of Forestry showed their interest to apply this initiative to other protected areas in Indonesia.

In **Siberut National Park**, UNESCO has also raised the visibility of the Spanish support towards the conservation of the national park, communicating with the local partners and informing them about the framework under which this project has been developed. All the materials and displays produced under the project have included the logos of the Ministry of Environment (Ministerio de Medio Ambiente y Medio Rural y Marino - MARM) and the Autonomous Organization for National Parks (Organismo Autónomo de Parques Nacionales - OAPN) of Spain.

UNESCO has also closely communicated at national level with the Ministry of Forestry and the Ministry of Culture and Tourism, to raise the visibility of the Spanish Cooperation in regards to this project. Both Ministries, which work together under the World Heritage Convention, have acknowledged the support of the Spanish contribution towards the Indonesian conservation efforts.

UNESCO and the project partners have put properly identified all the project produced materials and equipment purchased under this project. To this aim, stickers and labels with the emblem of the Ministry of Environment of Spain (Ministerio de Medio Ambiente y Medio Rural y Marino - MARM) have been produced to put on all provided equipment. All workshop and training activities have displayed banners representing the logo of the Ministry of Environment of Spain (Ministerio de Medio Ambiente y Medio Rural y Marino - MARM). All documents, posters and other awareness material produced under the project also include the logos of the Ministry of Environment of Spain (Ministerio de Medio Ambiente y Medio Rural y Marino - MARM).

SYNERGIES WITH SPANISH ACTORS

Synergy with Spanish institutions has been reflected throughout the project in several forms.

UNESCO has collaborated with Dr. Juan Rita Larrucea from the Department of Biology of the University of Balearic Islands (Universitat de les Balears). Dr. Larrucea is an expert on biosphere reserves management, including sustainable development. Since he has been the manager of the Menorca Biosphere Reserve and has a lot of expertise in establishing collaborative management

regimes, his inputs to the project have been very valuable. Mr. Larrucea has collaborated by providing advice to the project and GLNP on Biosphere Reserve management issues. Dr. Rita's expertise as a renowned botanist has been very valuable for the project, since he has provided key advice in developing an adequate ecosystem restoration strategy for degraded forest areas in the park.

In addition, UNESCO has collaborated with the Basque Government (Gobierno Vasco-Eusko Jauriaritza) through the Basque Volunteer Programme. Thanks to this grant, Ms. Arantzazu Acha de la Presa from UNESCO-Etxea has until the end of 2009 as the Assistant to Programme Specialist, and since 2010 she has been hired as the Project Officer for Spanish projects. Among her tasks she has acted as a liaison between the Spanish actors (MARM and AECID) and UNESCO, allowing a more fluent communication and coordination.

In March 2010, Mr. Benito Pinilla, Head of Area of International Cooperation, Deputy General Directorate for International Relations and European Affairs of the Spanish Ministry of Environment, and Rural and Marine Affairs (MARM), together with Mr. Francisco Jose Cantos, Head of the Projection and Development Section of the Autonomous Organization for National Parks (OAPN) of the Spanish Ministry of the Environment and Rural and Marine Affairs visited Indonesia in an evaluation mission to the MARM and OAPN funded UNESCO projects in Gunung Leuser National Park. During this visit they were accompanied by Mr. Oriol Freixa, Programme Specialist for Bilateral Government Funding Sources, UNESCO Paris, which is the focal point for Spanish contributions to UNESCO. During this visit, the MARM and OAPN representatives had the opportunity to meet the Programme Specialist for Environmental Science as well as the Spanish Ambassador to Indonesia H.E. Aurora Bernaldez, which showed her interest towards the MARM-OAPN-UNESCO collaboration.

During the field visit, Mr. Pinilla and Mr. Cantos visited the main three areas of the MARM-OAPN funded projects: Bukit Lawang, Sei Serdang and Tangkahan. In these sites they could appreciate the results achieved by the projects and also talk to local stakeholders on their perception of these achievements. The overall evaluation of this visit was satisfactory and allowed, not only to carry out an assessment of the project implementation and achievements, but also to strengthen the relationship and communication between MARM-OAPN and UNESCO. During this visit, Mr. Pinilla and Mr. Cantos provided their comments and inputs to the project, in order to improve the results in the field. During their visit, Mr. Pinilla and Mr. Cantos visited the newly renovated Bukit Lawang Visitor Center and received detailed indications and explanations about the national park, the main features of the park, its biodiversity, the ecosystem services it provides and the main threats over its integrity. They could also admire the nature of the park through a forest trek until the orangutan feeding platform, where they could see not only orangutans but also other relevant fauna and flora of the park, such as Thomas-leave Monkey, Long-tailed Macaque, Hornbills, Dipterocarps and the unique Amorphophallus flower.

In Sei Serdanag, Mr. Pinilla and Mr. Cantos, received detailed explanations given by the ecosystem restoration team, regarding the ecosystem restoration methodology applied in the area, and the main achievements of this program. Since this activity started, the area has increasingly received the visit of wildlife, such as birds, orangutans and even elephants. Mr. Pinilla and Mr. Cantos showed their commitment and interest in continuing protecting the park by participating in a tree planting ceremony.

In Tangkahan village, Mr. Pinilla and Mr. Cantos, participated in the ecotourism packages developed by the local communities, which have shifted their activities from timber and forest product extraction, to more sustainable and eco-friendly activities, such ecotourism.

PROBLEMS FOUND

No significant problem have been encountered during the project implementation process. Nevertheless there have been certain factors that have slowed the implementation of the projected activities.

A recurrent problem in the park lays on the management of the forests covered under the **GLNP** area. The park lays between 2 provinces, North Sumatra and Nanggroe Aceh Darussalam Province (Aceh), being the second one governed as a special territory (*daerah istimewa*), an administrative designation intended to give the area increased autonomy from the central government in Jakarta. This special autonomic status is leading to some unclearness regarding the competences of the Aceh Government and the Ministry of Forestry in the management of the area of the Gunung Leuser National Park located in Aceh Province. Within the Aceh Act, the Central Government delegated its authorities to the Acehnese Government to manage the Leuser Ecosystem. Previously, the Leuser Ecosystem was managed by Central Government through the Ministry of Forestry in collaboration with International Leuser Foundation (an Indonesian-based NGO). As a follow up on Act No. 11/2006, the former Governor of Aceh issued Governor Regulation No. 52/2006 regarding the Establishment Management Body of Leuser Ecosystem. The regulation is in contradiction with previously established laws, which should result in the fact that the Governor Regulation is not legally valid. However, as long as the Governor Regulation is not formally suspended by the central government, this issue could be a source of future conflicts in regard to who has the authority to manage the part of GLNP which is located in Aceh. Though the park is currently under the authority of the central government, it is vulnerable to local political developments. To overcome this sensitive issue, UNESCO has been lobbying for a better communication between the involved parties to, first of all clearly define the competences of each of them, and secondly to coordinate and collaborate in protecting the natural environment of GLNP and adjacent areas.

Staffing issues remain one of the key challenges in the management of the GLNP. Due to mismanagement during the last years, many staff members have developed a very negative work ethic. In addition to that, the average age of GLNP staff is above 40 years old, reducing their motivation and willingness to conduct field work. Continuous efforts have been put into place to ensure that the staff is ready to engage and learn from training activities.

Additionally, in both **Gunung Leuser National Park**, and **Siberut National Park**, there is a serious lack of communication and coordination between the national parks authorities and the local governments, both at provincial and district and sub-district level. The local governments don't perceive the national parks as part of their territory, and don't see the benefit of the existence of these protected areas. Even more, in some areas the sub-district governments have denied and rejected the presence of the national parks. This issue is in part caused by the lack of communication between the national parks and the local governments and can have significant impacts, since the district and sub-district governments are the responsible entities for the management of the buffer areas to the national parks.

As the difficulties that have affected directly the management and implementation of the project, the project has faced the following difficulties in **Gunung Leuser National Park**:

First, the extension of the Gunung Leuser National Park, 1,094,692 Ha (similar to the Spanish Autonomous Communities of Navarra or Asturias), makes it almost impossible to carry out the

orangutan census and socio-economic survey within one project. In order to ensure the quality of the results, UNESCO and the partner organizations decided at the beginning of the project to focus on the Eastern block of the GLNP, mostly located in the North Sumatra Province and continue the survey in the Western block with the support of the Ministry of Environment and Marine and Rural Affairs, through the 2009 voluntary contribution to the project: "Protecting orangutan populations in the Western Part of Gunung Leuser National Park, Tropical Rainforest Heritage of Sumatra".

Secondly, under the ecosystem restoration activity, UNESCO and GLNP have noticed that one of the trees species used for replanting the degraded forest area is actually an exotic species. UNESCO and GLNP are already replacing this exotic species with local ones to ensure that all the tree species planted in the restoration area are those that originally grew in this area.

In addition to the factors that have posed difficulties to the project implementation, the uncertainty regarding the park boundaries in certain areas, have added extra difficulties in carrying out the project. There are discrepancies regarding the limits of the national park in some areas, which include the restoration area. To solve this issue, UNESCO and GLNP have coordinated with BPKA, to officially designate the limits of the park. Nevertheless, due to conflicts with palm plantation companies and the national park, BPKA has not yet been able to establish the definite borders of the park. UNESCO will continue to work together with the national park and the Ministry of Forestry in solving this issue.

Finally, one factor that has to be taken into account in evaluating the project is the fact that the restoration activities require intensive attention, both in terms of human resources and in budgeting, and that this attention is required to last beyond the project period. It is expected that the restoration activity will be totally autonomous after three or four years, since its beginning.

In **Siberut National Park**, the biggest problem faced during the project implementation has been the 7.6 magnitude earthquake that struck West Sumatra Province on 30th September 2010. Damage was widespread killing over 1,100 people. The worst affected districts are the cities of Padang and Pariaman. Siberut Island is located 150 km off the west coast of West Sumatra Province. Being Padang the capital city of West Sumatra province, all the government offices are located in this city, including the SNP ones. Siberut Island also suffered the effects of the earthquakes, which added up to the ones from the series of earthquakes that hit the island in August 2009.

Though the NP offices were not severely affected and none of the SNP staff suffered serious injuries in the series of earthquakes, the operativity of the park was halted almost completely. The communication systems (phone, roads, and internet) were not operative and the park staff, the civil society and partner NGOs were focusing their efforts in relieving the effects of the earthquake for the weeks following the earthquake. Therefore the project activities were halted for more than a month to allow the West Sumatran society to recover from the impact of the earthquake.

SOLUTIONS TAKEN

In order to ensure the smooth implementation of the projected activities and the achievement of the expected results, UNESCO has set up a team to closely monitor the project. This team, consisting on UNESCO staff, key staff of GLNP, SNP and several NGOs working in the field, has met in a regular basis and kept close communication to detect any possible pitfall of the project and react to it in a timely manner. Through this mechanism, UNESCO has been able to responde to the difficulties in the field that could have negatively impacted the project implementation.

In relation with the lack of agreement on regards to the park boundaries in certain areas, including the ecosystem restoration area, UNESCO and **GLNP** decided to restrict their activities to the secured area, until the final decision was been made by BPKA, to avoid higher conflicts with local communities and palm plantation companies. Even after the project period, no significant progress has been made on this regards. To overcome this problem and secure the park boundaries, UNESCO is holding bilateral meetings with BPKA, to lobby for a decision.

To overcome the time limitation of this current project in achieving the final results of the ecosystem restoration activity, UNESCO is continuing to support the restoration in GLNP. With the support of MARM, UNESCO has continued the ecosystem restoration activities in Sei Serdang, to ensure that the planted trees grow without human disturbance.

In relation to the exotic species planted in the restoration site, UNESCO and GLNP have already identified all of them, and have removed them from the places they were planted. UNESCO and GLNP are currently replacing these exotic species with ocal ones.

In regards to **Siberut National Park**, and in the context of the earthquake occurred in West Sumatra in September 2009, UNESCO and partner organization feared that the project activities would be severely affected or even halted. Nevertheless, the well coordinated efforts to relieve the impact allowed a quick recovery and, despite the many human and material losses, west Sumatrans could be back to normal life within a short period of time. Regarding the impact of the project, most of the activities were carried out as they were expected, though some of them had to be postponed several weeks.

The planned workshop: "Collaborative conservation management and sustainable development in biosphere reserves" scheduled for 21-23 October, had to be postpone until 9-11 December, to ensure the availability of the participants as well as to allow basic infrastructure reconstruction to take place.

The participatory training on law enforcement as well as the field assessment of ecotourism potentials were rescheduled for January 2010, in order to ensure the best conditions in the field and the availability of stakeholders to fully participate in the scheduled activities.

Nevertheless, despite initial preoccupation given the magnitude of the catastrophe, the earthquake had no major impact in the implementation of the project and the activities have been carried out as initially planned.

LEVEL OF ACHIEVEMENT OF OBJECTIVES

The project has succesfully contributed to safeguard the critical orangutan habitat in Gunung Leuser National Park and to promote the conservation and sustainable use of the natural resources in Siberut in the context of societal change while respecting the cultural values of the indigenous communities.

In **Gunung Leuser National Park**, UNESCO and the partner organizations have sucesffuly gathered crucial information regarding the oragutan population and the main issues related to its conservation in the Eastern Block of the the park. This information includes socio-economic data of the villages laying across the border of the park, their perceptions towards the orangutan as a potential threat to their livelihoods and the conservation status of the main orangutan habitat in the study area. The results of these studies and analysis have allowed to define priority areas and actions to implement field interventions aimed to contribute to the orangutan conservation and the protection of its most critically threatened habitats. The comprehensive and multi-disciplinar information gathered has been shared with the main stakeholders, such as the GLNP, the Nature Conservation Agency, the Ministry of Forestry, research institutions and conservation NGOs.

One of the biggest achievement of this project in GLNP has been the establishment and strengthening of the communication between the main project partners in the park. Before the project initiation, the GLNP authorities and the conservation NGOs working in the area were not working coordinately in protecting the natural environment of the park, and worked in parallel systems. The project process has encouraged a better communication. As one of the results of the project UNESCO is producing a comprehensive document with the surveys' findings and follow-up recommendations to improve not only the orangutan conservation, but also the park integrity. This document, that is being developed in close coordination with the project partners, such as PanEco, OIC and YAPEKA, will be shared with the GLNP representatives and also with the provincial and district government representatives. With this effort, UNESCO and the partners are aiming to improve the coordination between the different government bodies (GLNP as representatives of the central government, and the provincial and district government as representation of the local people living in the area) in the protection of the national park's environment as well as the surrounding areas that are also key for ensuring the survival of the endemic species and ensuring the integrity of the ecosystem services provided by the park.

In **Siberut National Park**, UNESCO and the partner organizations have provided key support to ensure the effective protection of the park. This has been achieved by engaging with the main stakeholders in the area, such as the National Park, the Nature Conservation Agency, the local Mentawai government, local NGOs and community representatives. The project has successfully increased the local stakeholders capacities in a wide range of fields, such as GIS/GPS, law enforcement, culturally-sound communication mechanisms, appropriate community outreach methods and conflict resolution. At the same time UNESCO and the project partners have successfully gained the support of the local communities and policy makers towards Siberut Biosphere Reserve, through policy and alternative livelihood development.

Among the main achievements of the project in Siberut Island has been the opening of the communication channel between the Siberut National Park and the local Government of Mentawai. For the last 5 years these two institutions, which play a key role in preserving the natural environment of Siberut Island, have not had any communication, nor attended a common meeting or workshop. This has been a constant issue in defining strategies for sustainable development in the island, and has hampered both the national park's programs and the local government development planning. Through this project, and more specifically the "Collaborative conservation management and sustainable development in Biosphere Reserves with the Government Mentawai Islands" workshop, these two institutions have started to improve their communication systems and to search for collaboration initiatives. UNESCO, with the support of OAPN will continue to strengthen this collaboration.

Under this project, UNESCO has followed a multi-tailored approach aimed to engage each of the different stakeholders in specific ways in protecting the GLNP and SNP and adjacent natural areas. This approach has aimed, and successfully achieved the commitment of the different groups of stakeholders, raising their awareness towards the parks conservation, and providing them with tools to collaborate and promote the protection of the natural environment. These tools, which include ecosystem restoration ecotourism and agroforestry have been designed to be easily developed by the stakeholders, and to provide them with benefits and incentives to carry out these activities.

CONCLUSIONS

The project has been successfully implemented and has achieved the expected outcomes. No major difficulties have been faced on the implementation of the project activities.

This project has provided very usefull information about the main issues faced by both national parks in preserving the natural environment and has sucessfully engaged the partners in improving the conservation of both parks. UNESCO has put strong efforts in developing one common strategy with the project partners, and to include their concerns and inputs while carrying out the project.

Given the multi-stakeholder approach of the project, the GLNP and SNP have improved their communication and coordination with other partners that have the interest and capacities in assisting them on their mandate to protect the national parks.

COLLABORATING ENTITIES:

The project has been carried out directly by UNESCO in cooperation with a broad range of key-stakeholders from the conservation sector including national partners, provincial and local tourism organizations, NGOs, the local government and local communities. Some of UNESCO's key-partners on this project include:

- **The Ministry of Forestry, Directorate of Forest Protection and Nature Conservation**

The Ministry of Forestry strives to manage and utilize forests and forest resources in an optimal way and ensure their sustainability for people's prosperity, both for present and future generations. It has the authority to regulate and organize all aspects related to forest, forest area and forest products, assign the status of a certain area as a forest area or a non-forest area; and regulate and determine legal relations between man and forest, and regulate legal actions concerning forestry. The function of the Directorate of Forest Protection and Nature Conservation under the Ministry of Forestry is to formulate and implement policies and technical standards concerning forest protection and nature conservation. The agency's mission is (1) Improve the conservation management of natural resources and their ecosystems, (2) Improve the forest protection and law enforcement, (3) Develop the use of natural resources in line with conservation principles, (4) Develop institutionalization and partnership in the framework of conservation management and sustainable use of natural resources. One of the five directorates under the Directorate of Forest Protection and Nature Conservation is the Directorate for Conservation Areas, which is responsible for the management of national parks, nature reserves, wildlife sanctuaries, game parks and natural recreation parks. National Parks are managed by a respective management unit, consisting of a park manager, technical staff and park rangers.

o **Gunung Leuser National Park**

The Gunung Leuser National Park, managed the Ministry of Forestry, covers 1,094,692 Ha in North Sumatra and Nangroe Aceh Darussalam provinces. The GLNP has been one of the main beneficiaries as well as partners in this project. The GLNP has 200 staff, and the management of the park is divided into 3 sections, 6 sub-regional offices and 34 resort offices.

o **Siberut National Park**

Siberut National Park under the Ministry of Forestry, has mandate to manage 190,500 hectares of conservation area. The SNP has 68 staff, divided into 2 sections and 6 resorts.

- **PanEco**

PANECO foundation is a non-governmental organization working in North Sumatra with a long-standing orangutan research programme in the GLNP, including two permanent research stations in Ketambe and Suaq Belimbing to monitor and study the Orangutan population. The staff of PANECO is comprised by senior researchers and experts on the Sumatran Orangutan, its behaviour and habitat. PANECO has also established an MoU with GLNP as well as PHKA, Ministry of Forestry, endorsing its mandate in Orangutan research. The foundation is consulted on a regular basis by the Ministry of Forestry for its scientific expertise and in-depth knowledge on

issues related to the Orangutan population in GLNP. With support from the UNEP-UNESCO Initiative Great Apes Survival Partnership, PANECO organized, as the scientific leading organization in Orangutan research, a training on international recognized scientific methodologies and protocols to assess Orangutan population density and monitor its habitat.

- **YAPEKA (Yayasan Pembelajaran Konservasi/Conservation Learning Foundation)**

YAPEKA is a non-profit organization specialized on education, training, and publication on nature and environmental conservation. Supported by social workers and anthropologists with experience in Indonesia, YAPEKA develops its programs on fields like environmental education, health, community development, conservation, and mobile campaign to schools and communities in rural and urban areas. YAPEKA is experienced in developing research and environmental education programmes, mobile campaigns, and facilitating awareness raising programs, like clean water sanitation campaign, and global warming campaign. YAPEKA has previously implemented in conservation areas like national parks.

- **Orangutan Information Center-YOSL**

The focus of the collaboration between UNESCO and the Orangutan Information Center OIC, is the conservation of the Sumatran Orangutan as well as other threatened species. The OIC is a key member of the Sumatran orangutan conservation network, and has successfully brought together all the conservation NGOs and relevant bodies related, not only to the Sumatran orangutan, but also to the environment conservation in general in the GLNP area. The OIC staff is composed both by well-committed Indonesian and international multidisciplinary experts in the field of environment, which have a deep knowledge on the local, national and international context for orangutan conservation. The strong community outreach capacities of OIC, have proved to be key in gaining the local communities and civil organizations confidence and engagement in actively participate in the orangutan conservation initiatives and in reducing the human-wildlife conflict.

- **SW & Partners**

SW & Partners is a private law firm established in 2008, founded by several dedicated and licensed lawyers who have been dealing with various policy studies, litigation and non-litigation process. The Firm focused on litigation and non-litigation process for civil law, criminal law, constitutional law, and corporate law, research and development for environmental policy and legal issues. SW & Partner has an excellent network among the Ministry of Forestry, Ministry of Culture and Tourism, Constitutional Court, Police Headquarter, Military Armed Forces, Lawyer organizations and associations, as well as grass root organizations working on forestry, conservation, environment, agriculture, tourism, and mass media.

- **PASIH**

PASIH is a community based organization that has been working in Siberut Island in conservation projects since 2007. PASIH has signed a MoU with the SNP by which they collaborate to carry out conservation activities in the national park and adjacent areas. It also has well established networks with the local communities and the government, in promoting conservation and sustainable

development. Even before the establishment of PASIH, its staff has been working in conservation issues in Siberut, since 2003, when UNESCO implemented the national park Co-management Project. PASIH staff has a deep knowledge on the socio-cultural context in Siberut, and has developed a number of initiatives with the local indigenous communities to promote the sustainable use of the natural resources.

- **Ruang Rupa**

Ruang Rupa is a NGO working in Indonesia, specialized in producing awareness materials in different formats such as comics, documentaries, brochures, books and short films. Ruang Rupa consists in a multidisciplinary team with high creativity and strong commitment towards their projects. Their support towards this project has been key in developing the animation film targeting school kids.

PROJECT RESPONSIBLE

A handwritten signature in black ink, appearing to read 'R. Lee' or similar, written in a cursive style.

ROBERT LEE

Head of Environmental Science Unit

UNESCO Office, Jakarta