Concept Note

Title of the project: Mangrove Restoration in Meinmahla Island Wildlife Sanctuary

Total estimated project budget: Euro 150,000 from ASEAN Heritage Park Small Grant Program

1. Relevance of the action

The Meinmahla Kyun Wildlife Sanctuary (MMKWS), located in the Bogalay Township, Pyapon District, Ayeyarwady State, is managed by the Meinmahla Kyun Wildlife Sanctuary Authority under the Nature and Wildlife Conservation Division (NWCD) of the Forest Department (FD), Ministry of Natural Resources and Environmental Conservation (MONREC). On July 24, 1895, the area was designated by the British Colonial Government as a Reserved Forest for the purpose of firewood extraction. In 1993, the Ministry of Forestry gazetted the island, covering an area of 13,699.876 hectares, as a wildlife sanctuary and the area was declared as the Meinmahla Kyun Wildlife Sanctuary on January 5, 1993. And, the Meinmahla Kyun Wildlife Sanctuary was declared an ASEAN Heritage Park (AHP) on December 18, 2003.

Diminishing mangrove area in Meinmahla Kyun Wildlife Sanctuary (MKWS) has been accelerating since 1924 and reached its peak of maximum damage by Nargis that was a Tropical Cyclone storm hit the delta in year 2008. Bogalay Township where Meinmahla Kyun Wildlife Sanctuary is one of the Cyclone affected townships in Ayeyarwady delta and used to be well known for larger coverage of dense mangrove forests and substantial supply of mangrove products to Capital Yangon in the past. However, population pressure has been increasing over decades and encroachment into Forest Reserves in the township and illegal cutting in Meinmahla have been uncontrollable. Exploitation of forest products was first in place main reason for encroachers to come and settle later on inside the reserve forest permanently once mangrove vegetation was totally clear cut. Forest lands were also converted into paddy field and then used for shrimp farming when paddy yield declined. Boosting paddy production was a political priority by local authority so that illegal settlement inside forest reserve was ignored and informally permitted by mean of charging minimal fines to encroachers for their continuum of agriculture activity. Under this circumstance, two third of mangrove forests including Meinmahla Kyun in Bogalay Township had been degraded and disappeared. The vegetation in remaining mangrove area of the Meinmahla Kyun was also severely damaged by Cyclone Nargis and natural regeneration capacity was seriously affected. Unless proper action is undertaken for rehabilitating of the remaining mangrove area in Meinmahla Kyun, entire mangrove ecosystem is to be totally lost by aggravating the following socioeconomic consequences.

**Loss of biodiversity threatening local food security** – Depletion of mangrove habit seriously impact on loss of biodiversity that is a key for stabilizing food chain and food security. Non timber forest products and aquatic species are to be suffered from such losses so that the poor who are depending on them for a mean of livelihood are to sacrifice their access to these bio-resources. In Meinmahla protected area, where used to be a home for local endemic flora and fauna species, available data showed that only 28 tree species out of taxonomically recorded 80 mangrove species were found after Nargis and species enrichment in term of stocking density per unit area was merely a present of 185 trees per acre (small diameter tree). It compared to normal average planting density of 1200 small seedlings per acre and considered low.

**Declining ecological productivity and low income** – As mangrove has been depleted, given ecosystem is unable to replenish the nutrient that requires for maintaining its normal operating range of ecologically productivity. Declines of agriculture yield, fish catch and woody biomass are commonly reported by the
mangrove dwellers. If this trend continues, poor goods and services of mangrove ecosystem will severely affect on household consumption and local economy.

**Growing resource conflict and instability** – Social conflict is growing in Ayeyarwaddy delta due to the fact that natural resources are now scare and competition is becoming higher than ever before among the stakeholders for having free access to god-giving natural resource assets. Consequently, tragedy of common leads to unstoppable overexploitation of mangrove resource and results the split within the community. After Nargis, Forest Department is also taking advantage of political support in order to dislocate the illegal settlement from inside of mangrove forest reserve. Under this circumstances, there are growing displace persons wondering around mangrove area and their instability makes more harmful to mangrove conservation on Meinmahla Kyun.

**Increasing livelihood vulnerability** – Climate is rapidly changing in Myanmar. Recent Climate Change Scenario Study done by National Climate Change Project revealed that stronger storms are likely to be happened more in Indian Ocean and susceptibility of land-fall toward Myanmar is statistically higher as tropical trough which determine the direction of storm is changing. Thus, Ayeyarwaddy delta including Meinmahla Kyun would be potentially affected by storm hazard and vulnerability is seriously increased by absent of mangrove forest when storm hit the area.

**Depriving poverty and vicious cycle** – Multiplying effects of mangrove depletion deteriorate the overall socioeconomic condition of the mangrove dependents. With the impact by Nargis, the situation deepens the depth of poverty and PONJA report described that at least 29% of rural households are living under extreme poverty line and facing hardship for daily subsistence. Loss of assets compounded by decreasing social and natural resource capitals creates more stringent life for them to cope with the poverty. Unless measures of poverty reduction are otherwise undertaken, extreme poverty iterates the process of environmental deterioration that trigger the deprivation of the poor into vicious cycle of poverty trap.

The Meinmahla Kyun Wildlife Sanctuary (MKWS) became an ASEAN Heritage Park in 2003 and the ASEAN Center for Biodiversity (ACB) jointly implemented with NWCD the “ASEAN Heritage Park Small Grant Program (AHP-SGP)” starting from 2015. In the initial years of 2015 and 2016, the development of Management Plan was undertaken for MKWS. The management plan was now approved by the Ministers’ office. The relevant interventions for conservation in the park and livelihood support for the surrounding communities are mentioned in the management plan. According to restoration plan described in the management plan, the mangrove restoration is mentioned along the coast and enrichment inside the core area of Meinmahla Kyun was planned to establish 50 acres (20 hectares) annually for 10 years from 2018 to 2027 with a total of 500 acres (202.4 hectares) as shown in the appendices.

Close investigation done using drone in April, 2018 reveals that as a result of past excessive harvesting of mangrove trees, an unusual seral community of Phoenix paludosa-dominated mangrove vegetation, interspersed with seasonal grassland (brackish-tolerant) and trees of no apparent economic value [Minbaw, Fish tail palm (*Caryota mitis* Lour.), Thayaw (*Excoecaria agallocha* L.) and Ye-thaman (*Brownlowia tersa* (L.) Kosterm.), has been formed within the Meinmahla Kyun Wildlife Sanctuary as shown in the photos attached.

Of these facts stated above, mangrove conservation is crucial for restoring the degraded Meinmahla Kyun and livelihood security of the mangrove dependents around there and this project concept note formulated is to save the remaining degraded mangrove area of Meinmahla Kyun before it is too late.

As of recently approved Management Plan, there were 32 villages that are surrounded around Meinmahla Kyun Biodiversity Conservation area of Bogalay Township. The management plan also stated that, more than 8000 households are reportedly residing in these villages accounting of over 15,000 males and
16,000 females for total over 30,000 populations. According to the Post Nargis Joint Assessment report, it is estimated that 2,000 households equivalent to 30% of total households are poorer within these village communities. Followings are also the facts that justify the reason of project intervention in target area.

**Compliance with International Environmental Treaties** - As a signatory country to United Nations Convention on Biodiversity (UNCBD), Myanmar requires to fulfill her obligation to conserve at least 10% of each unique ecosystem critically significant to national and global biodiversity. Mangrove forest in Meinmahla Kyun is a unique inter-tidal mangrove ecosystem habiting globally endangered endemic species. It deserves conservation complying with Myanmar Agenda 21, UNCBD and United Nations Convention to Combat Desertification (UNCCD).

**Compliance with United Nations Framework Convention on Climate Change (UNFCCC) –** Deforestation is responsible for contribution of 20% Green House Gases emission at global level. In this respect, Myanmar had the *third-highest annual rate of forest reduction*, just behind deforestation-plagued Brazil and Indonesia, according to the Global Forest Resources Assessment 2015, released on September 7. As member country to UNFCCC, the effort is needed for to some extent reducing GHG emission from accelerated deforestation. The rate of deforestation in Ayeyarwaddy delta was 5.6% per annum far exceeding than the national average of 1.2% per annum. Thus, conservation of mangrove need to be attentive for mitigating global warming as well as for increasing adaptive capacity to climate change, particularly for reducing the risk of natural disaster like Tsunami and Cyclone Storm.

**Fulfilling of Millennium Development Goals** – To halve poverty by year 2015, securing environmental sustainability is goal number seven of Millennium Development Goals (MDG). As livelihood of the mangrove dependent is impartially inseparable with mangrove environmental sustainability, project intervention for mangrove conservation and empowering mangrove dependent for efficient and effective management of mangrove forest with greater sense of ownership is obviously important for reducing poverty and livelihood threats.

### 2. Description of the action

Overarching goal of the project is to ensure the environmental sustainability and enriched biodiversity by active participation of informed local community in rehabilitating mangrove ecosystem with greater sense of participation and shared responsibility for livelihood protection and socio-economic wellbeing. Paving the way forward to stated goals, two specific purposes are set out. These are -

**Purpose 1**: To build up the capacity and awareness of local communities for mangrove conservation, specifically protecting & conserving Meinmahla Kyun

**Activities**: Inception workshop, Awareness raising, Trainings

**Purpose 2**: To rehabilitate the mangrove cover in Meinmahla for the improvement of mangrove ecosystem and biodiversity conservation

**Activities**: - Mangrove species assessment  
- Selection & demarcation of planting sites  
- Selection of species & collection of seeds  
- Nursery preparation & practices  
- Planting mangroves (plantation establishment, enrichment planting)  
- Patching at dead place, Silvicultural treatments, Survival counting  
- Habitat restoration activities (planting fruit trees for birds and other wildlife, etc.)
It has been witnessed of the importance of mangrove forest in preventing natural disaster as well as in increasing ecological productivity of agriculture, livestock and fishery. However, the success of the attempt in conserving mangrove was limited in the past due to the lack of collaboration by local people in conservation and the weakness in improving the livelihood of mangrove poor who were dependent on the mangrove resources. Taking these lessons into consideration of project design, the strategic outlay of the project is to facilitate the healthier partnership between local authority and the mangrove dependent with the greater sense of collaborative approach in order to formulate and implement the participatory mangrove rehabilitation plan and creating enabling conditions for environmentally sustainable livelihood and income opportunities.

3. Way of project implementation

AHP-SGP will launch the call for EOI (Express of Interest) only to local CSOs (NGOs & CBOs) and selected organization has to submit the full proposal in which collaboration approach with the park and community. After project created a mechanism for collaboration among the stakeholders for mangrove conservation, intensive mangrove rehabilitation is to be carried out as Cash-For-Work program not only for improving the mangrove ecosystem sustainability but also to provide employment and income opportunity for mangrove poor living in 32 project villages. Mangrove conservation would include the activities of enriching the remaining mangrove forest and reforestation of degraded mangrove area in Meinmahla Kyun.

As a result of successful implementation of the project, it is expected to restore the environmental sustainability of minimal 2000 acres (over 800 hectares) of critical mangrove ecosystem in Meinmahla Kyun. The effectiveness of restoring mangrove ecosystem for such a larger coverage would be enormous in sustainable livelihood of the target area. From the socio-economic perspective, ecological productivity, especially for fishery sector would be boosted within 3 to 5 year period having the impact on enhancing income level of 2,000 household of mangrove poor in surround villages of Meinmahla Kyun. Healthier mangrove would also protect the lives of target groups, approximately over 30,000 populations of 8000 households, by reducing the risk of natural disaster under climate change in the long run. A mechanism established for collaboration of mangrove dependent on rehabilitating and conserving the mangrove resource and environment will also enable the rest of mangrove dependents in other part of township to replicate the similar initiative for securing sustainable livelihood. From the environmental perspective, not only globally endangered endemic species such as Laba (Sonneratia griffithii Kurz.) and cited as critically endangered (CR) and Kanazo (Heritiera fomes Buch.-Ham.) as endangered (EN) by IUCN would be conserved but also enrichment and diversity of flora and fauna species would enhance the potential of future food security, health and nutrition security and income security.

From the cost-effectiveness perspective, total estimated project budget is approximately Euro 150,000 for 3-year (last year is only for plantation maintenance activities) project implementation to restore at least 2000 acreage of degraded mangrove area through plantation establishment as well as gap planting and regeneration improvement felling (RIF) so that on average, it is merely 600 US $ to restore one acre (0.4 hectare) of degraded mangrove while securing the seasonal employment during the critical time of a year to 2,000 households in target area.

4. Sustainability of the action

The risks associated with implementing the proposed action would be the occurrence of natural calamity such as storm, tsunami, drought and flood. The best way we can minimize the risk of natural calamity is to ensure the survival of the mangroves rehabilitated in the park and to strengthen the capacity of local
community for environmental conservation and restoration. Weak coordination from local community for collaborative mangrove management is considered another risk. The planned activity of the project is raising public awareness of importance of mangrove conservation through local media would also enhance the better understanding of local communities for their healthier coordination in the coordination mechanism.

To assure the sustainability of the action after the implementation of the project for achieving stated goal, quality of the project performance in capacity building and designing of micro-grant for community conservation and livelihood initiatives is very important. The selection of right trainee and proper training need assessment should be done for better training and effectiveness which will support for long term sustainability of mangrove conservation in Meinmahla Kyun Wildlife Sanctuary.

5. Annexes

(1) Map representing intended gap planting sites in MKWS
(2) Photos taken during the trip in April 2018
Annex 1: Map representing intended gap planting sites in MKWS

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Annex 2: Photos taken during the trip in April 2018

Photo 1: Large gaps can be seen inside MKWS (Northwest side)

Photo 2: Though it looks greener as compared to its surrounding, MKWS is largely dominated by *Phoenix paludosa*, mangrove date palm, over MKWS. (Northwest side)
Photo 3: East side of MKWS are also dominated by *Phoenix paludosa*.

Photo 4: Middle East side of MKWS are also with sparse vegetation covers and dominated by Thinbaung (*Phoenix paludosa* Roxb.) and other shrubby species.
Photo 5: Southern part of MKWS shows large gaps and very sparse vegetation.

Photo 6: Southwest of MKWS shows numerous gaps and very sparse vegetation.