NEWSLETTER

October 2022

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PROJECTS

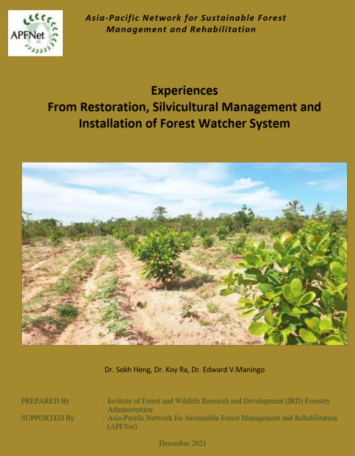
Completing project "Integrated Forest Ecosystem Management Planning and Demonstration Project in Greater Mekong Sub-region" in the Cambodia site

The project *Integrated Forest Ecosystem Management Planning and Demonstration Project in Greater Mekong Sub-region (Cambodia) [2017P2-CAM]* has been completed on June 30th, 2022. Executed by the Institute of Forest and Wildlife Research and Development (IRD) of Cambodia and supervised by the Cambodia Forestry Administration, the project was started in June 2017 at Damrey Chakthlork Community Forestry in Phnom Srouch District, Kampong Speu province in Cambodia aiming to demonstrate the different techniques for restoring degraded forests and strengthen state-owned forest conservation.

With USD 51,747.76 APFNet funding, the project shows significant improvement in vegetative conditions in the community forest site. The project now has served as a demonstration forest that adequately produces and allows natural seedlings to grow with the planted seedlings. The billboards and boundary posts made in the project have effectively prevented outsiders from entering the area and therefore forming a conservational site. Support of patrol operations in this project has provided significant help in controlling encroachment and forest violations in the community forest. By empowering technical skills among local community members and the local Forest Administration, the farming technology (Agroforestry, Woodlot and Home Garden) has demonstrated the potential of improving the small piece of land for individual farmers and households.

The farmer cooperators who participated in testing the agroforestry and home garden technologies have better yields. One major impact of the project is the availability of water to the local community. Households no longer need to buy water from local water sellers, because the community now is able to plant vegetables in their backyards and they are all connected with the water system that has been established through this project.

After five years of implementation, all project activities have been successfully and smoothly completed. Main project achievements are summarized:



1. Development an integrated community forest management plan to strengthen community forest management and to test appropriate restoration and silviculture technology;
2. Adopting local communities' dependence on forests by improving household farming systems from the establishment of nursery and seedling production training, restoration and silviculture models, village water supply system, agroforestry farming system and the home garden farming system;
3. Enhancement of forest protection through instalments of the advanced forest monitoring system (Forest Watcher)
4. Expansion of the achievements and related techniques in Cambodia and the GMS region from demonstration and experiences sharing.

Supporting the intensive management of commercial plantations and optimal management of public welfare forests in Pu'er, Yunnan Province, China

With 5 years implementation, the Integrated forest ecosystem management planning and demonstration project in the Greater Mekong Subregion (Pu'er Project Site) was completed in April 2022 and has passed the terminal evaluation organized by APFNet in July 2022. This project is one sub-project among a total of five, which is a series of projects focusing on integrated forest ecosystem management in the

GMS region, specifically in Cambodia, China (Pu'er), Laos, Myanmar, and Viet Nam. Since Pu'er is located in the transition zone between tropical and subtropical forests, APFNet finds it is the best place to showcase the forest management practices for both zones in the GMS region and other tropical subtropical regions.

Through this project APFNet helped WZSFF develop a 20-year Master Plan of Integrated Forest Ecosystem Management (2017–2036) to provide short- and long-term integrated planning for forest ecology and forest health, forestry industry, institutional matters and training of personnel. In addition, a more detailed 10-year Multifunctional Forest Management Plan (2020-2029) was prepared to meet the objectives set up in the master plan. These plans will serve as frameworks to inform policymakers and guide practitioners, increase the ecological, social and economic benefits of the forest farm in the long term, while also serving as a model for partner economies in the GMS region.

In order to showcase the best forest management practices, the project established a network of site-specific demonstration sites to showcase different forest management models for both public welfare forests and commercial forests, especially for Simao pine (Pinus kesiya) and Western birch (Betula alnoides) which are two common local species in Yunnan.

For commercial plantations, intensive thinning practice and target tree management have been applied to accelerate the tree growth and increase the land productively and profitability. While for public welfare forests, these forests have been managed to maintain and improve the ecological functions, protect biodiversity, provide forest ecosystem services and meet the needs for the sustainable development of human society.

With the goal to improve the livelihoods of the local community, while taking full advantage of the forests, APFNet selected 5 ha of natural secondary forests with good site conditions and convenient access to demonstrate understory planting. Medicinal plants belonging to Dendrobium, Anoectochilus formosanus, Rhizoma bletillae and other Orchidaceae were selected to plant in the demonstration site. Understory planting provides profitable non-timber forest products (NTFPs), improves ecosystem service functions and benefits forest ecosystems. It also enables forest farmers to obtain real benefits and improve their livelihoods. In the long term, understory planting will prove highly significant in improving forest ecosystem quality in this region and enhancing overall ecological, economic and social conditions.

Improved Science-Based Estimates on Emissions from Peatland Burning in Indonesia

As the AIFNet project "Improving capacities towards reducing greenhouse gas emissions from peat swamp forests in Indonesia", spearheaded by the Forest Research and Development Center of the Forestry and Environment Research Development and Innovation Agency (FOERDIA) of Indonesia and the University of Melbourne (UoM) in Australia, is formally being closed in August 2022, the project can be considered a significant success. It is changing Indonesia's Forest Reference Emissions Level (FREL) reporting already to UNFCCC.

The project itself aimed to improve GHG emissions estimates from burned peatlands, as these types of emissions contribute nearly 50% of the emissions from Indonesia's land use sector, but were previously considered to be highly inaccurate. In order to improve that accuracy a new and through scientific methodology with improved parameters for estimating emissions and providing empirical data had to be developed. This undertaking was led by the scientists at FOERDIA and UoM, who subsequently published three different papers outlining their findings and the new methodology.

The first paper, titled "Identifying and addressing knowledge gaps for improving greenhouse gas emissions estimates from tropical peat forest fires" by Dr. Volkova and colleagues, published in 2021, in the journal Science of the Total Environment focused on a comprehensive literature review to determine the parameters that would be required to best calculate GHG emissions from burnt peat forests based on international guidelines. In this paper, the authors found that there are still many gaps in the knowledge of carbon pools and only few recent supporting studies, supporting the need for the project to add empirical data to the knowledge base. They determined that all carbon pools, meaning aboveground carbon, carbon from deadwood, pyrogenic carbon (PyC) and peat of single and repeatedly burned forests each should be measured. They furthermore identified the minimum sampling intensity required for each forest type. Additionally, they reported first results of their measurements regarding how much carbon remains as aboveground deadwood in average after a single fire and how much remains after a second fire. They also obtained similar data for PyC, which is only rarely reported, as well as peat bulk density and peat carbon content change depending on fire frequency.

In a subsequent paper, titled "Carbon balance of tropical peat forests at different fire history and implications for carbon emissions", by Dr. Krisnawati and colleagues, also published in the journal Science of the Total Environment in 2021, the actual total aboveground carbon (AGC) in biomass pools including trees, shrubs, deadwood, litter and char, as well as peat carbon were assessed to develop the estimates for peat swamp forest carbon stocks in response to fire and disturbance. The paper clearly showed that, in fact, not all AGC is combusted in the first or second fire, rather about half remains mainly in dead trees, woody debris and pyrogenic carbon and in the top 10cm of peat both recently burned and repeatedly burned peat forests actually store similar amounts of carbon. The study furthermore estimated the combustion factor (CF), that is the relative proportion of fuel mass consumed in fire in order to make accurate estimates of peat fire emissions for both AGC and peat carbon. It found that the CF for AGC is similar to the default value given by the Intergovernmental Panel on Climate Change (IPCC) but the CF for peat deviated quite significantly from the IPCC value, ending up being only 33-50% of its value.

Finally, in a third open-access paper and technical note titled "Loss and Recovery of Carbon in Repeatedly Burned Degraded Peatlands of Kalimantan" in the journal Fire, published by Dr. Volkova and the previous authors in 2021, the focus now narrowed down to the actual fire degradation as it happened on the study site in Central Kalimantan, Indonesia, where in the 2019 dry season 133,631 ha of degraded peatlands were burned. The authors accurately

estimated how much carbon was lost from surface fuels and the top peat layer using the newly developed estimation methodology, concluding that an average of 2.5Gg of carbon were released in these fires. About 20cm of the surface was lost to combustion and a time series analysis of live green vegetation (NDVI), combined with field observations of vegetation recovery two years after the fires, and indicated that it seems to take the area about 3 years to recover from this to compensate for the lost carbon.

Overall, the project thus not only contributed to the political changes mentioned above, but also contributed valuable new empirical data and an improved methodology to the scientific community, filling important knowledge gaps.

MEETINGS & DECISIONS

Dr Guan Zhi'ou selected as the new Chair of the Board of Directors at the sixth meeting

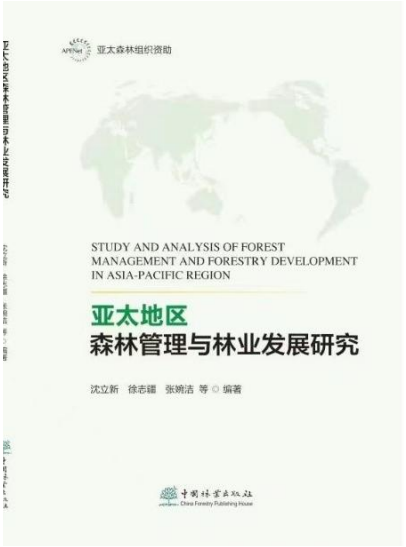
APFNet's decision-making body, the Board of Directors, selected Dr Guan Zhi'ou by consensus as the new Chair of the Board of Directors at its sixth meeting, which was held virtually on 25 August.
Dr Guan is the current Administrator of the National Forestry and Grassland Administration of China. He holds a PhD degree in ecology from the Chinese Academy of Science and has extensive expertise in agricultural and forestry policies, poverty alleviation, environmental protection, trade and economic affairs. He has vast experience serving as an official for different government agencies related to agriculture, economy, trade and administration at the municipal and provincial levels of China.

SANFRI Small Research Grant will support three projects

To promote regional forestry scientific research cooperation and better serve the restoration of forest ecosystems in the Asia-Pacific region, APFNet launched a new 2022-2023 round of SANFRI Small Research Grant. Scholars from different member economies submitted four project proposals. After expert review, three projects finally passed the assessment and will receive funding from APFNet. The three projects are:
1. Vietnam & Laos: Research on Policies to Promote Natural Forest Restoration towards Sustainability in Vietnam and Lao PDR
2. Indonesia: Tree Seed Supply Management Model and Policy for Supporting Forest and Landscape Restoration in Indonesia
3. Malaysia: Documenting the insect natural enemies of insect pests in ex situ germplasm conservation of Aquilaria malaccensis
The projects are expected to be officially started in November 2022 for one year, and the terminal evaluation will be conducted at the end of 2023.

INFORMATION SHARING & PUBLICATIONS

Study and analysis of forest management and forestry development in the Asia-Pacific region



Sustainable forest management and the development of forestry are playing an important role in social sustainability, especially in livelihood and community development, poverty alleviation, and biodiversity conservation. There are huge gaps in forestry management and development among many developing economies in the Asia-Pacific region. It is very important to realize the gaps and share good practices for those economies. In this sense, APFNet Kunming centre, funded and supported by APFNet, has carried out the literature review and analyzed the development of forestry at the economy level since 2017, especially focusing on forest laws forestry policies and regulations, forestry strategic planning, forest resources and industries, forestry governance, research and education system. There were 27 economies from the Asia-Pacific area selected, including 21 member economies in the Asia-Pacific region. The book titled “Study and Analysis of Forest Management and Forestry Development in Asia-Pacific Region” has been published in Chinese recently and welcomed by forest officers and researchers in China.

Improved forest cover mapping by harmonizing multiple land cover products over China

The scientific paper titled “Improved forest cover mapping by harmonizing multiple land cover products over China” was published on GIScience & Remote Sensing in September 2022, which is an output of APFNet project “Regional Forest Observations for Sustainable Forest Management”. This paper provides an approach for improving land cover mapping by leveraging existing products and clear view Landsat composites. Assessments using independent reference datasets revealed that the CAF-LC30 2020 product derived using this approach over China was more accurate than four existing land cover products. Its overall accuracy with field observations was 2.94% to 10.28% higher than those of the four existing land cover products in northeast China and was 2.10% to 8.18% better across China. It provided a more accurate representation of the land cover types in many regions where the existing land cover products had large classification errors. This study concludes that the CAF-LC30 2020 product should be a better alternative for understanding China’s forests in 2020 than the other four existing land cover products. For more about the paper, please click here.

Sharing of national park laws to boost the establishment of a national park administrative system in China

National parks play an important role in natural heritage, such as stunning landscapes, extraordinary wildlife

and majestic forests. Therefore APFNet has paid attention to the development of the parks and funded the research of the national parks since 2018. A book titled "A Review of National Park Systems: Lessons Learned in National Park Development in North America and Oceania" was published in Chinese and English in the past two years respectively.

China has been developing the administrative system of the national parks since 2013. One of the key tasks is the development of laws, policies and regulations related to the national park and abundant resources have been mobilised for it. APFNet has been dedicated to playing a constructive role in this process. Recently APFNet translated ten national park laws developed by eight economies into Chinese. They are the Yellowstone National Park Protection Act 1872 (USA), National Park Service and Related Programs (USA), National Park Service Centennial Act (USA), National Parks Act (Canada), National Parks Act 2000 (Scotland), National Parks Act 1980 (New Zealand), National Parks and Wildlife Act 1972 (South Australia), Natural Park Act (Japan), The Statutes of the Republic of Singapore Parks and Trees Act (Singapore), National Park Act (Thailand). These laws enacted now are very important knowledge, experience and reference materials. A compilation of national park laws in Chinese will be introduced to forest administrative agencies, researchers and other stakeholders.

Thematic paper on forests for the resilience of the Pacific Islands in climate change finalized

APFNet started drafting the thematic paper titled "Increasing the resilience of people and landscapes in Pacific Small Island Developing States – the role of forests and trees in the context of climate change" for the FAO Pacific Forest Sector Outlook Study in 2021. In June 2022, the draft was revised based on suggestions from the FAO reviewers and editor and was finalised in July. The paper summarises the climate projections for the Pacific Small Island Developing States (Pacific SIDS) from the latest IPCC reports and literature, potential impacts on forests and people and the roles forests have played and will play in climate change adaptation and mitigation. It also proposes three possible scenarios for the future, lists recent regional programmes and interventions and puts forward recommendations for the forest sector to improve the resilience of people and forests in the region.

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