

# TURNING COMMITMENTS INTO CANOPIES: FOREST LANDSCAPE RESTORATION IN SARAWAK

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## **Abstract**

Forest Landscape Restoration (FLR) has been recognized as a solution to the global forests loss, which simultaneously contributes to sustainable development through restoring the ecological, social, economic values and functionalities of degraded forest landscapes. As announced by The Premier of Sarawak in March 2019, FLR has been made one of the State's main agendas to ensure that forest remains vibrant, and its complex ecosystem could carry out its natural functions. Therefore, Forest Department Sarawak (FDS) is at the forefront of implementing FLR in Sarawak, to protect, sustainably manage and restore the degraded forested ecosystem, while maintaining its self-sustaining functions to provide benefits to both people and biodiversity. FDS also advocates an inclusive FLR participatory process and encourages stakeholders and local communities to be the catalyst for FLR implementation through their active participation in any restoration activities. Hence, for a successful implementation of FLR in Sarawak, FDS as a leading agency is committed on strengthening diverse restoration strategies and other dynamic approaches. This paper will further elaborate on the FLR initiatives and programmes that have been planned and implemented throughout Sarawak as well as the FLR strategy and action plan for the future.

Keywords: Forest Landscape Restoration (FLR), Forest Department Sarawak (FDS), degraded forest

## **1.0 INTRODUCTION**

Forest Landscape Restoration (FLR) has gained global support over the last couple of years and has been moving fast since the New York Declaration on Forests (NYDF), which was first endorsed at the United Nations Climate Summit in 2014 (UN 2014) and the Bonn Challenge, which is a platform to achieve multiple restoration targets under one initiative. IUCN (2014) has defined FLR as a long-term process of regaining ecological functionality and enhancing human well-being across deforested or degraded forest landscapes. FLR has also been recognized as a solution to the global loss and degradation of the world's forests that simultaneously contribute to sustainable development through restoring the ecological, social and economic values and functionalities of degraded landscapes (IUFRO, 2017). It seeks to restore a forested ecosystem that is self-sustaining and that provides benefits both to people and to biodiversity.

There is a growing awareness of the importance of FLR globally and the State has already begun taking the step forwards in committing to national and global initiatives to protect, sustainably manage and restore its forest and degraded lands.

## **2.0 OBJECTIVES OF FLR IN SARAWAK**

Although Sarawak maintains an extensive forest cover and has been practicing a holistic forest policy toward sustainable forest management, most of its production forests have undergone selective logging that affects forest structure and species composition. As such, to balance and reduce the impacts of the exploration of forests for development projects, State Government has come up with a coherent new strategy and action plan for FLR in Sarawak, which will have the following main objectives:

- i. To enrich logged-over areas with high-value timber species;
- ii. To restore and conserve degraded forests, especially in Permanent Forest Estate and State Land Forest;
- iii. To alleviate livelihood of forest-dependent communities; and
- iv. To reduce pressure on natural forests by shifting timber production towards plantations of fast-growing species

## **3.0 FLR APPROACH BY FOREST DEPARTMENT SARAWAK (FDS)**

Motivating factors for initiating restoration in Sarawak are already relatively well in place. Its principles, techniques and components in its approach has, in fact, been in existence as early as 1920s through reforestation activities by Forest Department Sarawak (FDS), as well as the gazettelement of Totally Protected Areas (TPAs) and Permanent Forest Estates (PFEs). Restoration activities have been supported by the State Government since then. In recent years, FDS has embarked on its large-scale FLR program at beginning of the year 2019 and has been announced as one of the State's main agendas by the Premier of Sarawak in March 2019 to ensure that the forest remains vibrant and its complex ecosystem could carry out its natural functions.

FLR in Sarawak is demonstrated through different processes according to the different land uses. These include the new tree plantings, natural regeneration through silviculture management, agroforestry and also improved land management to suit a mosaic of different land uses, such as protected wildlife reserve and buffer zones inside agriculture and plantation areas. This mosaic approach of restoration, which considers several types of land use over a broad landscape, has been also widely suggested as the best FLR option of frameworks (Minnemeyer, 2011). As for FDS, active restoration activities at degraded areas inside Permanent Forest Estates and State Land have been the main focus, besides supporting planting activities in other areas including Totally Protected Areas (TPAs), HEP and water intake catchments, buffer zone, ex-mining/quarry areas as well as parks and greens.

As the main driver for the implementation of FLR in Sarawak, FDS has taken several dynamic initiatives, including the establishment of a FLR Task Force comprising of different working groups with specific but different roles. Among other initiatives that have been taken by FDS so far include:

**i. Revive and establish forest nurseries throughout Sarawak**

To ensure continuous supply of planting materials for high value indigenous species, activities such as reviving, establishing and upgrading forest nurseries are being carried out since 2018, before the start of large-scale FLR implementation in Sarawak. To date, FDS owns seven (7) nurseries throughout Sarawak, which can accommodate more than 500,000 seedlings at one time. The establishment of nurseries by FDS has provided job opportunities or additional income to the local communities through engagement as nursery workers, purchasing of seeds/wildings and other related works. More regional nurseries will also be established in the near future to overcome the shortage for high value indigenous species.

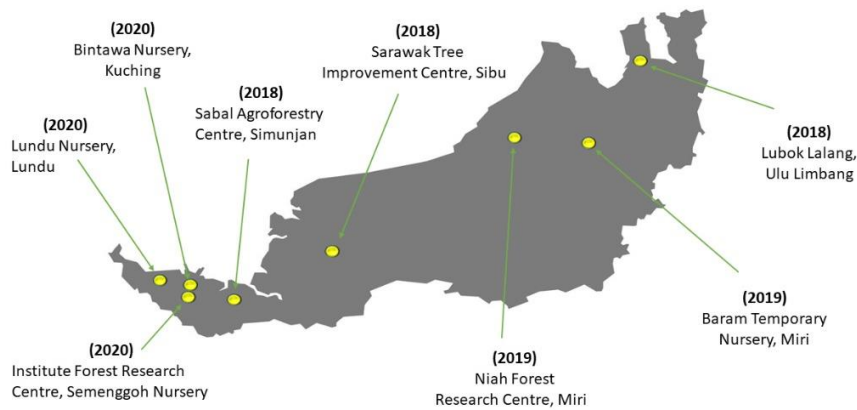


Figure 1: Map showing the distribution of FDS' forest nurseries throughout Sarawak

**ii. Establishment of Seed Production Area (SPA)**

SPAs are designed for seed production and serve as a continuous source for planting materials, particularly the high value indigenous species. FDS has actively identified potential mother trees and natural forests inside PFEs that could be recruited and established as SPAs. Currently, 21 SPAs of high value indigenous species have been established throughout Sarawak, which consisted of a total of 1,477 mother trees. Phenology monitoring and maintenance of the established SPA will be conducted continuously.

**iii. Enforcing DF Circular 02/2019 & 03/2019**

In upholding its policy on Sustainable Forest Management (SFM), FDS has also urged all timber licensees to commit and participate in FLR programmes. Other than to comply with Forest Management Unit (FMU) Certification by 2022, the Director of Forests has issued a directive through DF Circular 02/2019 for restoration programme to be implemented within all timber license areas using only indigenous trees. The directive also applied to mangrove license areas through DF Circular 03/2019. The commitments are to ensure that the forests are managed sustainably for the betterment of future generations.

**iv. Communication, Education and Public Awareness (CEPA), Promotion and Publicity**

As part of the awareness program, FDS has strengthened its CEPA programs as well as the promotion and publicity on restoration activities to the public through digital platform, interview session for local TV and newspaper, talk show, participation in the webinar, as well as through outreach programs and exhibitions. In 2021, FDS also organised the Le Tour De Restoration - Greening Sarawak program as part of its outreach for awareness program across all the regions in Sarawak through mobile exhibitions and environmental activities. This program has also distributed 50,000 seedlings to various government and private agencies, NGOs, the public and many more. Apart from that, FDS also publishes a quarterly bulletin called SILARA as one of the mediums to deliver the information on activities related to FLR and the Greening Sarawak program that has been carried out by FDS.

**v. Intensifying Research and Development (R&D)**

R&D is one of the initiatives taken to address the gaps in ensuring the success of the FLR implementation in Sarawak. While having its own expertise to support FLR program such as seed technology, growth and yield, pest and diseases, propagation and genetic improvement, FDS is also currently exploring the potential of using Seed Ball as new technology to support the restoration efforts in Sarawak. Seed Ball is a simple cluster of seeds wrapped in a ball of soil premix which can be applied directly, as in the Throw and Grow method or be used together with drones to facilitate restoration activities especially in hilly and steep terrains.

**vi. Enhance Collaboration Between Departments and Stakeholders**

FDS is promoting the Greening Sarawak program and FLR through diverse partnerships and collaboration involving individuals and stakeholders. FDS believes that these collaborative efforts will raise awareness among the public on the benefits and importance of restoring the forests, which will eventually empower them to become their own 'Green Ambassadors'. In fact, the growing awareness of the importance of FLR programmes has contributed to the increasing number of collaborations offers by various corporate bodies in tree planting activities. To name a few, Petronas, Shell, Sarawak Energy Berhad, AEON, Sime Darby and Cahya Mata Sarawak are committed to reduce their carbon footprint by planting more trees as part of their corporate social responsibility.

**vii. Aggressive Industrial Forest Plantation (AIFP)**

In 1996, Sarawak embarked on large-scale forest plantations as a long-term strategy toward a new source of wood materials in order to reduce pressure on natural forests. With the planting of the fast-growing species, the State Government is hoping to establish 1 million hectares of industrial forests by 2025.

### **viii. Promoting Social Forestry and Engagement with Local Communities**

The aspect of local community involvement is naturally highlighted when discussing about FLR approach within the State. Hence, FDS always encourages local communities to be the catalyst for FLR growth within the State through their active participation in any restoration activities. Since the beginning of this FLR programme, FDS has been engaging with local communities through direct employment or providing alternative incomes, which included employment for the nursery workers, daily-paid workers for planting and maintenance activities, purchase of seeds/wildings/seedlings from communities, transport rental, homestay services agroforestry projects and many more. Furthermore, as part of its social responsibility, FDS has conducted a lot of community-based programs for the locals living within and adjacent to forests, such as the construction of a jetty, longhouse repair, gravity feed water supply, Tagang system monitoring, as well as to assist in developing and marketing Non-Timber Forest Products (NTFP) as one of the ways to uplift their livelihood.

### **ix. Leveraging on Advance Technology in FLR**

FDS has taken serious steps forward in leveraging technology to support FLR initiatives, which has greatly minimized the time spent on planning, implementing and monitoring activities. For instance, space-borne sensors has been utilized to identify high-priority areas for restoration through hyperspectral imaging system that are being employed for forest biometric data collection, forest health monitoring, forest canopy gap assessment and species composition. In addition to that, with recent scientific advances, FDS is adapting drone seeding technology to increase efficiency at the microsite level. Customized UAVs are flown autonomously to sow seeds and concurrently used in monitoring and proactive protection. This innovative project named 'Aabil-Aerial Tree Seed Dispenser' has received a par excellence award in the 46<sup>th</sup> International Convention on Quality Control Circles 2021.

## **4.0 THE WAY FORWARD**

Implementation of FLR in Sarawak is also in line with the national '100 million Tree Planting Campaign' led by the Ministry of Energy and Natural Resources (launched in January 2021 by the Prime Minister of Malaysia). Hence, FDS has rebranded the FLR Programme to 'Greening Sarawak Campaign' in order to cover a broader scope. The campaign encourages planting of all types of trees, including indigenous tree species, commercial tree species, fruit trees as well as landscape trees. With that, FDS has further intensified its goal to plant 35 million trees by 2025 and the move is also in tandem with Sarawak's vision to become a developed state by 2030, which emphasizes environmental sustainability as introduced in its Post Covid-19 Development Strategy 2030.

For a successful implementation of FLR and Greening Sarawak Program, FDS will continue to focus on strengthening diverse restoration strategies, which include intensifying tree plantings, especially in the degraded areas inside Permanent Forest Estates (PFEs) and State Land Forests, as well as efforts to enable and assist natural regeneration of the forest itself. The restoration initiatives in ex-mining areas in Sarawak will also be explored in the near future as the research and development activities have been initiated in the area recently.

Meanwhile, to expand human capacities and funding in response to the FLR agenda, FDS also aims to enhance and strengthen collaboration with various stakeholders that include government and corporate agencies, international bodies, NGOs as well as local communities, who were encouraged to start on their forest nurseries, especially for high value indigenous species. Apart from the implementation part, the

engagement also involves planning and decision regarding policies, land use, restoration goals and methods, benefit sharing as well as monitoring and review processes. There is also a need to strengthen the social forestry program by actively involve surrounding communities in the entire implementation.

As successful restoration projects need to address the long-term funding, exploring Payment for Ecosystem Services (PES) such as carbon offsets will be one of the ways forward besides ensuring sufficient funding and budget allocation from government, corporate bodies and international organizations.

Establishment of Centre of Excellence for FLR is also in the plan, in which Sabal Forest Reserve and Bakam Government Reserve have been identified as two of the FLR model areas, where upgrading of infrastructures such as forest roads will be in place as well as model for Fire Management Plan will also be developed in the area, which includes fire watch, fire disaster response, tools for fire-fighting, fire recovery and public awareness on fire risks.

Moving forward, an effective performance and database system will be systematically integrated and enhanced to contribute to more effective embedding and reporting on FLR throughout the State.

## **5.0 CONCLUSION**

Since its official launch on 15<sup>th</sup> June 2019, Sarawak's FLR Program has been significantly progressing over time. As of today, Sarawak is leading the '100 million Tree Planting Campaign' with 10,903,567 trees planted. The commitment shown by the State Government in restoring forests and its landscapes is an important step in regaining the health and functionality of these ecosystems to meet the needs of the people of Sarawak. With this strong effort, it will balance out and reduce the negative impacts of the exploration of forests for development projects and help tackle the global climate crisis. FDS will continuously publicize the commitment and spirit of maintaining the green covers within the State, in hope that these efforts will turn into canopies that are beneficial for nature, people's well-being and future generations.

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