IMPROVING THE CONNECTIVITY OF THE CENTRAL FOREST SPINE IN PENINSULAR MALAYSIA

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Abstract

The Central Forest Spine (CFS) of Peninsular Malaysia as the name implies is the green backbone of Peninsular Malaysia. It is composed of eight main forest complexes and is an important natural landscape of Malaysia, harbouring extremely rich biodiversity and the remaining population of Malayan tigers in its forests. The CFS straddles across eight state and have experienced loss of forests due to rapid development such as agriculture and urbanization. This had resulted overall reduction of the forest area and fragmentation of the natural habitat. Forest fragmentation inhibits the free movement of fauna and flora which usually leads to habitat destruction thus ultimately reducing the diversity of plants and animals. The CFS Master Plan (CFSMP) was formulated in 2005 to increase the integrity of the CFS through conserving and rehabilitating critical linkages in between each complex. The Improving Connectivity of the Central Forest Spine (ICCFS) project is a GEF funded project supported by the Government of Malaysia to support and enhance the implementation of the CFSMP and conserve biodiversity within the forest landscape. The project will enhance capacity of federal and state governments to better plan and manage the CFS landscape and ecological corridors, reduce poaching by increasing enforcement capacity, develop ecological corridor management plans, improve local community livelihoods, address human-elephant conflicts, rehabilitate degraded sites and ensure sustainable financing for managing and conserving the corridors. This paper provides an account of the main activities that are being conducted under the ICCFS project that will enhance connectivity of Forest landscapes within the Central Forest Spine, and ensure forest and biodiversity are conserved and protected.

Keywords: Central Forest Spine, Biodiversity, forest conservation, wildlife protection
**Introduction**

The Central Forest Spine (CFS) forms the green backbone of Peninsular Malaysia. It is recognised for its population of the endangered Malayan tiger as well as being extraordinarily rich in biodiversity in general. It also provides the country with considerable ecosystem goods and services and contains the water supply for most of the population on the Peninsula. It also plays a protective role in providing climate regulation, soil protection, and carbon storage.

Established under the 2005 National Physical Plan (NPP), the Central Forest Spine (CFS) is an Environmentally Sensitive Area (ESA) comprising eight main forest complexes: Banjaran Titiwangsa – Banjaran Bintang – Banjaran Nakawan; Taman Negara – Banjaran Timur; South-East Pahang, Chini and Bera Wetlands; and Endau Rompin National Park – Kluang Wildlife Reserves (Figure 1). Spanning over 6.7 million hectares, the CFS harbours critical mountain watersheds and catchment areas that supply water for 90% of the population. What used to be one large contiguous forest landscape has over the years been fragmented to smaller forest landscapes. This leads to genetic erosion as unique genes are trapped in isolated forest areas. These broken forests also contribute to the increase in cases of human-wildlife conflicts. Consequently, the management of the ecological corridors that links these forest landscapes are critical for promoting the long-term survival of species as they support the movement of wildlife between these fragmented patches. The goal of a corridor is to promote functional connectivity, which can be achieved through reforestation, good land practices as well as viaducts and overpasses.

Recognising the critical role of the CFS in conserving biodiversity and maintaining the environment, the Malaysian Government is now attempting to reconnect these forest landscapes through 40 ecological corridors. A CFS Master Plan (CFSMP) has been developed to ensure that conservation efforts are in place to protect the existing forests within the CFS landscaped and enhancing the role of the ecological corridors that separates the CFS landscapes.
The CFSMP

The establishment of the Central Forest Spine Master Plan (CFSMP) was a direct response to the conception of the Central Forest Spine. It entails improved management of 40 ecological corridors within the northern and southern parts of the peninsula that are known as vital linkages for the four main forest complexes in the CFS and provides actionable measures, including the costs of maintaining and enhancing these linkages. It is initiated by the federal government and is implemented by the state government with a timeframe of 15 years following the 10th, 11th and 12th five-year Malaysia Plans. It is expected to cost the Malaysian Government over USD 257 million. Currently, over MYR 97 million have been allocated for the CFSMP.

The Master Plan aims to increase the integrity and connectivity between the four major complexes through the “Ecological Linkages” that bridge segregated forestations. The plan redefines the linkages into two groupings – Primary Linkages and Secondary Linkages. The Primary Linkages within the CFS is identified as a linear corridor, which connects two separated forests to re-establish its connectivity for a continuous link in the Central Forest Spine. These linkages allow wildlife, genetic resources, and ecological functions to move freely between the two areas. Most of these areas are located between crucial forest blocks, within narrow stretches that are usually untouched by urban developments. They require major interventions such as land acquisitions and the construction of viaducts instead of common highways.

Secondary linkages are known to be the complementary linkages, where they are established in more degraded lands that would need to maintain a degree of connectivity between forested areas. These linkages take the form of stepping stones that replicate the riparian corridors – a small patch of restored vegetation that filters and allows movement for small mammals, birds and insects (and even larger ones) between landscapes.

These linkages ensure that wildlife corridors are maintained, enabling movements of important flora and fauna, thus providing greater protection for them. By protecting our land, we would also stand to benefit more in terms of ecosystem services, tourism, cultural benefits and by means of land management.
The IC-CFS

The CFS project is a much needed, and applauded effort in preserving key ecosystems in Peninsular Malaysia. However, this project is one of the first of its kind. A large, landscape-scale conservation effort that is multi-faceted. There is no template or reference point for this project and so it's a learn-as-you-go type effort as well. Hence, there is a limit on the expertise and skill required to execute such an ambitious task. In this regard, the Global Environmental Facility (GEF) through the United National Development Project has agreed to provide financial contribution to implement the IC-CFS (Improving the Connectivity of the Central Forest Spine in Peninsular Malaysia) project to support the implementation of the CFSMP to restore connectivity between forest complexes. The Project is spearheaded by the three main
implementing partners namely the Forestry Department Peninsular Malaysia, Department of Wildlife and National Parks and Forest Research Institute Malaysia. It also involves collaboration with State Parks, universities and NGOs such as WWF, MNS, MyCAT, Pelindung, MRS, etc. A total of USD 10.8 million has been allocated for the project which was initiated in 2014 and is expected to be completed in 2023.

The IC-CFS project will

a) strengthen the institutional capacity of the federal and state governments and other relevant agencies to implement the CFSMP and the NTCAP in these landscapes so that connectivity between forest complexes can be enhanced and law enforcement against wildlife and forestry crime can be intensified;

b) build upon current land management plans in the three landscapes to ensure that biodiversity and ecosystem service values are accounted for and that all planned land uses are sustainable; and

c) set up sustainable financing mechanisms for the conservation of the CFS, for example by implementing Payment for Ecosystem Services (PES) schemes, in order to mainstream biodiversity into development plans.

The successful completion of the IC-CFS project in these landscapes will enhance and strengthen current efforts to implement the CFSMP and will provide an example for best practices for sustainable landscape management elsewhere in Malaysia and beyond.

Enhancing Enforcement

A key action to protect wildlife in Malaysia is by reducing poaching. Poaching as been identified as the main threat to wildlife conservation particularly for iconic wildlife species such as the endangered Malayan Tiger. Poaching in particular is driving their rapid decline, pushing them quickly towards extinction. (Simon Rawles, 2021) Malaysian conservationists are sounding the alarm, urging that the tiger is in crisis, requesting military protection for tigers from poachers. Many poachers in Malaysia are not Malaysians, but foreigners from Indochina. However, locals living near forests are also involved, sometimes as middle men. Meanwhile, National Parks and protected areas become targets due to their higher numbers of wildlife and biodiversity.
Local Community Rangers

The ICCFS Project supports the enhancement of enforcement to address wildlife and forestry crimes through the local community rangers (LCR) patrolling and desnaring program. This program is headed by PERHILITAN in collaboration with NGOs such as WWF, PELINDUNG, MYCAT, WCS and others. The LCR consist of orang Asli community around the CFS that are hired, trained and equipped to carry out patrolling and destruction of snares and traps. It has been reported that the poaching in Belum Forest Reserve has been reduced by more than 90% as a result of continued patrolling efforts. The presence of these patrolling and destruction of snares has frustrated and significantly reduce poaching. Integrated patrolling efforts through the Op Bersepadu Khazanah last year involving the Royal Malaysia Police, the Department of Wildlife and National Parks (Perhilitan), State Forestry Department, the Customs Department and other enforcement agencies succeeded in arresting 127 individuals, making RM31.86 million worth of seizures and destroying almost 300 animal traps. Thus, patrolling efforts needs to be undertaken continuously to reduce poaching and conserve wildlife in Malaysia.

Empowerment Under the Wildlife Conservation Act

In addition, under the project a novel effort is being undertaken to empower forestry and state park officers to enforce the Wildlife Conservation Act 2010. There are provisions under the Act for empowerment and it is being used for the first time under the ICCFS Project. The empowerment will provide greater powers for respective officers to enforce the wildlife act to reduce crimes outside the forest reserves and state parks. In this pilot stage, officers from Forestry Departments of Pahang and Perak and Johor as well as Johor and Perak State Parks have been identified to be empowered.

SMART Patrolling

The SMART platform consists of a set of software and analysis tools designed to help manage and protect wildlife and their habitats. SMART can help standardize and streamline data collection, analysis, and reporting, making it easier for key information to get from the field to decision-makers. It provides managers with a range of scientific indicators of threat frequencies
and patterns, target species, and patrol effectiveness. Managers use it to adjust patrol tactics and strategy.

SMART Patrolling is being widely used by PERHILITAN and several NGOs in their patrolling efforts. Under the ICCFS project The Forestry Department’s patrolling activities are also being encouraged to adopt the smart patrolling techniques. This will allow for greater sharing of patrolling data with PERHILITAN and State Parks as well as enhance patrolling effectiveness in an integrated manner. The Forestry Department has already piloted SMART Patrolling in Perak, Pahang and Johor and will institutionalise the systems into their enforcement program. These integrated efforts will further reduce wildlife and forestry crimes and better conserve wildlife and their forest habitats.

Gazettement of State land Forests into Forest Reserve

Recognising the importance of enhancing the role of the ecological corridors in reconnecting the fragmented forest landscapes, there is a need to protect the existing forest within and adjacent to the corridors. In this regard, efforts are made to gazette State land forests to Permanent Reserved Forests (PRF). An area of about 29,686 hectares of forested State lands in the CFS ecological network has been successfully gazetted as PRF to date involving an area of 18,866 hectares in Perak; 4,398 hectares in the State of Kedah; and 6,423 hectares in the State of Pahang. The most significant was the gazettement of 18,866 ha of stateland forests as Aman Jaya Forest Reserve. This has greatly enhanced the ecological corridor by improving connectivity between Temenggor, Belum and Banding forest landscapes (Figure 2)
Meanwhile, an area of 432 hectares was also gazetted as a State Park under the Terengganu State Parks Enactment and 438 hectares as a Johor Elephant Sanctuary by the Johor State Government. The strategy also emphasizes the gazetting of river reserves and providing riparian zones within the CFS ecological network, mainly large-scale plantation and agricultural areas for wildlife routes and movements. Further efforts are still being made under this Project to identify more potential areas of stateland forests to be gazetted as PRFs through consultation with relevant State authorities.

**Management Plans for Ecological Corridors**

Ecological Corridors comprises many land uses involving multi stakeholders. For example, one of the ecological corridors which the focus of the ICCFS project in Johor J-PL1 comprises state land forests, orang asli villages, private forest plantations, mining and road networks.
In this regard, to ensure that the corridor is managed in a way that optimises its ecological value as a corridor for wildlife, a management plan is needed. Under the project, 3 management plans for selected ecological corridors each for the state of Perak Pahang and Johor will be developed. To date, the plan for J-PL1 has been developed. The plan takes into consideration the impacts of all existing land uses as well as potential developments. All stakeholders have been consulted and are supportive of the need to protect the ecological value of the corridor. Management plans for the ecological corridors for Perak and Pahang will be completed this year (2022). In addition, State Structural and Local District Plans under the relevant Town and Country Planning Departments has included CFS ecological corridors in their plans to ensure that development of the areas takes into consideration impacts on the corridors.

Figure 3 Land uses within the Ecological Corridor J-PL1 Johor
Sustainable Finance Plan

In trying to enhance the conservation of forests in Malaysia and ensure that the integrity of forest remains intact, the management forests is exploring alternative forest management activities that have lower impact on the forest ecosystem and the environment while reducing its economic benefits. Other than logs and timber, forests provide a large number of services contributing to the welfare and well-being of human beings - be it local, national, or international. Important services provided by the forests include: (a) carbon sequestration and storage; (b) regulation of water flows and quality; (c) provision of tourism and recreational opportunities; and (d) biodiversity conservation.

The project aims to develop and pilot mechanisms for increasing and diversifying funding CFS conservation. The aim is also to attract potential donors to support the implementation of the CFSMP, diversify from government sources to corporate sector and also to the general public. This will increase the security of a financial base for conservation, raise awareness of CFS conservation among all stakeholders, and mainstream it into economic development. These financing mechanisms will also be incorporated into sustainable landscape management plans. Capacity building will also be provided to conservation managers and other key stakeholders in order to plan for, access and operationalise new financing mechanisms. Under the Project the development of a Sustainable Finance Plan is underway and is expected to be completed by June 2022. The Plan will provide Pahang with options to manage their forest sustainably taking into consideration alternative sources of income from the forests as well as potential funding from local and international sources for forest conservation and wildlife protection.

CONCLUSION

The Central Forest Spine (CFS) of Peninsular Malaysia is recognised for its population of the endangered Malayan tiger as well as being extraordinary rich in biodiversity in general; it also provides the country with considerable ecosystem goods and services and contains the water supply for most of the population on the peninsular. This IC-CFS Project will conserve biodiversity and ecosystem services in three critical landscapes of the Central Forest Spine, by supporting the country’s CFS Master Plan to restore connectivity between forest complexes. The Project which began in 2014 is expected to be completed in 2023. The outputs of the Project will enhance the management and conservation efforts under the Federal and State
Governments to implement the CFSMP. Conserving the integrity of the Central Forest Spine is critical for Peninsula to ensure that our forest ecosystem remains intact, biodiversity is protected and our environment remains healthy for the benefit of current and future generations.

References


