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TREND EDITORIAL

Biodiversity conservation in China–Pakistan Economic Corridor region with strategic environmental assessment

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Dear Editor,

Pakistan has a rich biodiversity, particularly in the Himalayas (Nabi et al. 2018). However, owing to habitat destruction (Ansari and Golabi 2019; Hughes et al. 2020), biodiversity in the Himalayas has been reduced. Threats to biodiversity in the proposed China–Pakistan Economic Corridor (CPEC) road network area have rapidly expanded and have become increasingly evident over the past decade (Hussain et al. 2020). If not controlled promptly, it will harm habitats and ultimately result in biodiversity loss. Along with the Himalayas, the habitats of notable mammals are already included in the red list of the International Union for the Conservation of Nature and Natural (IUCN) (Nabi et al. 2017). The Himalaya is a region to several endangered species including Siberian ibex (*Capra sibirica*), Himalayan brown bear (*Ursus arctos isabellinus*), snow leopard (*Panthera uncia*), Himalayan black bear (*Ursus thibetanus larger*), leopard cat (*Prionailurus bengalensis*), and Himalayan ibex (*Capra ibex sibirica)* (Haq 2012; Shah and Sciences 2011). The CPEC is a "Belt and Road" project between Pakistan and China, with a total value of US$62 billion (Ullah and Li 2019). It was officially launched in 2015 and might be completed in 2030. Despite its positive aspects, it has may have negative impact on local fauna and flora (Hussain et al. 2020). Sadly, the road route proposed for the CPEC requires forest cutting, as Pakistan already has the lowest sustainability performance score, by having the smallest share of forests in South Asia (Sun et al. 2020). Pakistan has already launched different collaborative conservation projects with different donor agencies such as the World Wide Fund for Nature (WWF), mainly aimed at conserving habitats for fauna and flora and developmental skill programs for the locals of the northern area (Baig and Al-Subaiee 2009). Biodiversity in the northern mountain has a pivotal role in supporting and sustaining the livelihood of surrounding communities. In this context, China and Pakistan are engaged in identifying different ways to address, minimize, and mitigate harm to biodiversity on a priority basis and maximize the social acceptability and environmental benefits of the CPEC.

The Environmental Impact Assessment (EIA) is a common and globally used decision-making tool for preventing adverse environmental impact from development projects. It constitutes data collection, the identification of environmental aspects and impacts, comparison of alternatives, evaluation of required mitigation measures, identification of compensatory measures, detailed Environmental Management Plan (EMP), and recommendations (Aung et al. 2020). The Initial Environmental Examination (IEE), EIA, or Strategic Environmental Assessment (SEA) is mandatory before the commencement of new projects under the Pakistan Environmental Protection Act 1997 and provincial environmental protection acts (Khan et al. 2020). However, the government of Pakistan considers EIA insufficient for CPEC perhaps because of the multi-facet interests of stakeholders and has decided to conduct SEA (Khan et al. 2020). Kouser et al. (2020) argue that EIA is insufficient for the megaprojects of the CPEC in terms of environment protection and the optimization of benefits. Hence, SEA comprising Social Impact

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Assessment (SIA) may be fruitful by the two countries. SEA can prevent habitat destruction and conserve the environment along the CPEC road. SEA has been used worldwide in assessing adverse environmental impacts of megaprojects on biodiversity (Ives et al. 2015) and communities. It fosters the conservation of natural resources, informed decision-making, stakeholder engagement, and the social–cultural well-being of communities and ensures community engagement throughout the decision-making process (Campagna et al. 2019). SEA ponders sustainable policy implications aimed at promoting environmental sustainability in transport sectors, particularly through road impact mitigation (Bina et al. 2009). SEA is new in Pakistan and few SEAs have been conducted so far. In Pakistan, the environmental authority of provincial environmental protection agencies has weak capacities, and knowledge and training on SEA in environmental protection agencies are currently limited (Fischer et al. 2014). Given that China has addressed issues regarding the effectiveness of SEA implementation (Wu et al. 2011), Pakistan can adopt China's practices for the CPEC.

Hence, comprehensive tools are essential for the conservation of the intrinsic value of biodiversity, and evaluation of the direct and indirect impacts of the CPEC's economic activities (Geneletti 2003). In this scenario, the government of Pakistan has mandated the implementation of SEA for each CPEC project. A comprehensive environmental management program is needed during project execution to conserve biodiversity and optimize economic benefits. Additionally, China intends to support the rehabilitation efforts of Pakistan and considers establishing a sustainable biodiversity corridor with Pakistan. These efforts will further reduce pressure on biodiversity. The detailed assessment of CPEC projects by relevant environmental, wildlife, and forestry institutions in Pakistan can impact biodiversity, communities, and the environment (Leal-Arcas and Morelli 2018). Biodiversity issues must be considered in discussion making, planning, and SEA at a regional landscape level. Both countries should develop habitat models and methods for future planning scenarios to predict and assess impacts on focal species, although they were possible to mitigate quite easily (Mortberg et al. 2007). SEA is a better tool for addressing transboundary environmental challenges. Thus, only the SEA ratified by Pakistan and China can promote the reversal of biodiversity losses (Saeed 2017). Although a large number of SIA studies have been conducted, comprehensive and systematic analysis of construction activities in the CPEC region remains inadequate. Therefore, further attention should be devoted to macro risks, such as political risks, safety risks, law risks, gender issues, and community safety in the CPEC region with SIA (Hughes et al. 2020; Zhang et al. 2018) and in combination with SEA. The protection of biodiversity, social acceptability, regional connectivity, trade, and legitimate commercial interests must be ensured. Hence, executing CPEC projects in a sustainable way and reducing biodiversity-related impacts or risks are imperative. Moreover, multiple-level solutions for decreasing the vulnerability of sensitive regional ecosystems should be formulated, and all stakeholders should be engaged in enhancing social acceptability and economic benefits.

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