ADB-WII Webinar Series: Greening Transportation Projects

Webinar II Ecological Considerations in Planning and Mitigation Measures, and Capacity Building Needs for Effective Conservation alongside Linear Infrastructure

1. Is there a cost recovery mechanism to cover additional investments?

There are two types of cost recovery mechanisms in India.

One is built-in mitigation costs in the project itself where the costs for the mitigation are built-in as part of the road development project plan.

Second is 'Public Private Partnership' Projects where a contractor gets the tender for the project development. In this case, the government decides the toll tax amount and duration of the toll tax for users of the project/road. The private contractor also has the responsibility of maintenance of this stretch of road project.

2. How does linear infrastructure affect animals (nocturnal vs diurnal)? Is there a difference in effect and should there be different approaches for mitigation?

Linear infrastructure affects wildlife in multiple ways - roadkill or mortality because of animal-vehicle collisions, fragmentation and isolation of animal populations, and long-term effects including ingestion of pollutants by wildlife. Disturbance because of noise emissions from traffic and anthropogenic presence have been found to alter behavior and activity patterns of wildlife. This includes shifting of peak activity patterns towards nocturnality to avoid peak human and traffic activity periods has been observed. Diurnal species have also been found to avoid habitats in the vicinity of roads.

Permanent mitigation measures mitigate all impacts. If we use a temporary approach like traffic control which is a non-structural mitigation measure, then it varies. E.g., a speed breaker is a structural mitigation, but it does not reduce impact to that extent. However, if we go for permanent mitigation measures, they mitigate most impacts whether we talk of nocturnal or diurnal animals.

Added reading material: LISA_Annex4_LiteratureReview_FINAL.pdf

3. Viaduct is considered as better solution to wildlife problems than fencing? What are your views about it?

Viaduct or elevated road can be a very good solution to prevent vehicle – wildlife collision. This would indeed be the best solution particularly in forested areas or ecologically sensitive areas or protected areas. Fencing is useful if its purpose is to guide wildlife to use an underpass or overpass crossing the road. Hence, installing a fence alone without connection to an overpass or underpass will not be

useful. Infact installing only a fence on either side of the road will worsen the situation of habitat fragmentation and act as a barrier even for the few wildlife species that may have the ability to quickly cross the road.

4. Can you give examples of linear projects where Biodiversity Action Plan (BAP) was required to be prepared? What were differences in BAPS prepared for different types of BAPs prepared for linear projects of different types?

A Biodiversity Action Plan (BAP) was required to be prepared for a number linear infrastructure projects – particularly those located inside or near ecologically sensitive areas. Two examples of road project with BAPs can be found here:

i. https://www.adb.org/projects/documents/ind-47341-004-eia-1
ii. https://www.adb.org/projects/53312-002/main

The activities in a BAP differs from one project to another based on the differences in project context, presence of legally protected area, type of ecological sensitivity and species of concern in the project area. For example, in the project examples given above the species of concern in the India SASEC road project included 12 restricted range fish species. Hence the BAP activities included restriction in quarrying and mining river bed materials for construction in and near the river.

In the second project example in Uzbekistan one the species of concern is the Bukhara Urial. Hence activities in the BAP and Biodiversity Monitoring and Management Plan (BMMP) include avoiding impacts on this species and enhancing the conservation of this species.

Webinar III Natural Capital Conservation amidst Development and the Role of Governance in Planning Conservation Friendly and Sustainable Transportation Projects

5. Based on your experience, what is a good practice in infrastructure planning to consider the role of natural capital for reducing climate risks specifically?

When we plan mitigation measures for linear infrastructure projects, species populations remain connected over large landscapes due to these crossing structures. This results in reduction or no in-breeding among this population, directly affecting the population related issues like meta-population, as in-breeding leads to diseases and genetic abnormalities. Eventually the species populations remain intact and ecosystems function well, also ensuring the flow of ecosystem services.

Smaller groups of populations are always at risk, and when populations are connected, these risks are eliminated. This is ultimately the protection and propagation of our natural capital.

Added reading material: OECD policy-perspectives-climate-resilient-infrastructure.pdf

6. Your opinion on animal underpasses frequently constructed to conserve wildlife

Yes, animal underpasses are constructed to conserve wildlife.

Added reading material: National Geographic wildlife-overpasses-underpasses-make-animals-people-safer

7. Rural areas also have wildlife. Would government be willing to implement verge aspect there?

The verge is the space between the road edge and the forest vegetation. Verge has a role in an unmitigated road section where it acts as a safety zone for the animal before crossing, by providing a buffer for animals and drivers to avoid collisions. However, the function of a verge is not useful once a road section has been mitigated by means of animal crossing structures and/or fencing.

Added reading material: Environmental evidence journal

8. Also, for a new road, how is a verge defined that traverses a forest area?

See previous question and answer above.

Webinar IV Lessons from the Field: Success Stories of Mitigation Measures in Maintaining and Enhancing Connectivity, and Concluding Session: Summing up of the Webinar Series with Key Takeaways

9. I have a concern regarding Dr. Bilal's presentation. He depicted the case study in Maharashtra. Is it underpass? I think it is road flyover (elevated road) as the animals are passing at grade. If we consider underpass where railways will be at grade and the animals especially elephants will move through underpass like Doha Zari-Cox's Bazar railway project funded by ADB, what will be the result?

In Maharashtra, it is a flyover for vehicles and an underpass for animals. Worldwide, underpasses have been defined as crossing structures wherein animal movement occurs below the road/linear infrastructure. These structures are also called ‘viaducts’ if their widths are large (>100 m).

10. Would like to know of tigers using the underpass at Rajaji

As of now, tigers have not started using these underpasses. However, elephants, leopards and sloth-bears are using them.

11. Every year along Mahindra Highway, especially in the section of Bardiya National Park, many people are killed by tigers and this section of the highway has become terrible section to the Motorbike riders. So, if there are any specific measures to reduce such incidents?

Motorbike movement may be prohibited during peak animal/tiger activity periods.

Added reading material: https://kathmandupost.com/editorial/2021/01/04/reducing-roadkill