

## WWF Environmental and Social Safeguards Categorization Memorandum

<p><b>Project Title: GEF Integrated Landscape Management to Secure Nepal's Protected Areas and Critical Corridors</b></p>	<p><b>Date:</b> 7/19/2018</p>
<p><b>Project Location and salient physical characteristics relevant to the safeguard analysis:</b></p> <p>This GEF project will be implemented in Banke National Park Buffer Zone, Bardia National Park Buffer Zone, Brahmadev Corridor, Kamdi Corridor and Karnali Corridor. The selection of intervention sites within Banke National Park Buffer Zone, Bardia National Park Buffer Zone, Kamdi Corridor and Karnali Corridor in Component 3 will be made during implementation, based on criteria such as presence of high value conservation forest, high carbon stock forest, human-wildlife conflict hotspots, importance for wildlife movement, and priority areas for responding to threats.</p> <p><b><i>Banke National Park (BaNP) Buffer Zone</i></b></p> <p>The park lies in tropical and sub-tropical ecological zones and the Churia, Bhabar (narrow belt of gently sloping southern foothills of the Churia hills) and Terai physiographic regions of Nepal. The topography of the BaNP is very diverse, with flood plains, river valleys and gorges, and the Churia hills lying between the Rapti river in the south and the Babai river in the north. Its highest elevation is 1247 m at Kuine ridge/ Phurksalli and the lowest elevation is 153m near Dhakeri. The buffer zone (BZ) of BaNP has an area of 343 km<sup>2</sup>, encompassing parts of Banke, Dang and Salyan districts. The park is connected with Bardia National Park (BNP) towards the west, which further links with Katarniaghat Wildlife Sanctuary in India via the national and community forests of Khata corridor. Similarly, it also adjoins Kamdi corridor through national and community forests, connecting with Suhelwa Wildlife Sanctuary (SWS) in India and provides important habitat for tigers.</p> <p>The park can be divided into three ecological regions: a) Plains, b) Bhabar/Churia foothills, and c) the Churia ridge. Several forest types can be categorized according to the ecological regions. The plains with an altitudinal range of 153 m -250 m asl, contains various forest types: Sal forest, Riverine forest, Floodplain forest, and Khair-Sissoo forest. Bhabar/foothills ranging from 250 m to about 600 m asl, has forest types such as Hill Sal forest, Mixed hardwood forest, and Riverine forest. In Churia hill region with altitudinal ranging from 600 m up to 1247 m asl, mixed Churia hill forest is the main forest type found in the area with hill sal forests found scattered in places.</p> <p>The structural diversity of the forests changes from site to site even within similar forest types. Forest composition, structure and status change according to the horizontal as well as vertical gradients of the park. The Bhabar/ foothills of the Churia are more diverse than either of the lowland plains and the Churia forests. Likewise the western and middle sectors of the park are more diverse than the eastern sector. Of the flora recorded in the park, 263 species have been identified. Sal (<i>Shorea robusta</i>), Asna (<i>Terminalia tomentosa</i>), Chiraunjee (<i>Buchanania latifolia</i>), Bajhi (<i>Anogeisus latifolia</i>), Sissoo (<i>Delbergia sisoo</i>), Khair (<i>Acacia catechu</i>), Dumri (<i>Ficus glomerata</i>), Sindure (<i>Mallatous philippinsis</i>), and Jamun (<i>Eugenia jambolana</i>) are the dominant species in terms of density and basal area. About 20 to 30% of the area is dominated by Sal forest and other species include Barro (<i>Terminalia belerica</i>), Harro (<i>Terminalia chebula</i>), Karma (<i>Adina cordifolia</i>), Kusum (<i>Schleichera trijuga</i>), Bhalayo</p>	<p><b>Project Categorization (A,B,C):</b> <b>B</b></p>

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(*Semecarpas anacardium*), Panchkule (*Dillenia pentagyna*) and Bot Dhaiyanro (*Lagerstroemia parviflora*).

The park is home to 34 species of mammals, 236 species of bird have been reported from the BaNP area including 50 species listed as endangered. The park is also home to 25 species of reptiles and nine amphibian species.

The BZ of the park includes parts of Kohalpur municipality and two rural municipalities of Banke district. Similarly, the northern part of BZ occupies parts of two rural municipalities of Dang and one rural municipality of Salyan. The ethnic composition of the buffer zone comprises of Tharu, Musalman, Brahman, Chhetri, Magar, Kurmi and Thakuri. Agriculture is the major occupation in the area. Mining of sand and gravel is also a major source of income generation in the area. The villagers living near the buffer zone are dependent on community forests for firewood, fodder and other non- timber forest products.

### ***Bardia National Park (BNP) Buffer Zone***

The park is bounded by the Geruwa River (eastern branch of the Karnali River) in the west and the Nepalgunj - Surkhet road in the east at Banke district. The crest of the Churia hills (the Siwalik range) forms the northern boundary while the southern boundary adjoins buffer zone settlements, cultivated fields, forests and parts of the East-West Highway. The Buffer Zone (BZ) covers an area of 327 sq. km. encircling the eastern, southern and western boundaries of the park. Five distinct land types are to be recognized in BNP & BZ namely (i) the Churia (Siwalik), (ii) the Bhabar foot-hills, (iii) the alluvial Terai flat lands, (iv) the riverine floodplains, and (v) the Babai Valley where the Siwalik splits into a set of parallel ridges. A large part of the park is composed of the southern slopes of the Churia hills and the gravelly foot hills called Bhabar belt. The alluvial Terai flatland is largely occupied by the buffer zone and lies outside the park boundary.

The Buffer Zone (BZ) covers an area of 327 sq. km. encircling the eastern, southern and western boundaries of the park. The BZ consists of 17 Village Development Committees with a resident population of 101,000 (BZ Management Plan 2057 B.S.). The population density is 308 persons per sq. km. in the BZ, where the cultivated area is just over 40% (41.48%) and forest cover also amounts to about 40%. Most of the BZ area lies on the downstream side of the park, and thus enjoys ecological safety provided by the park. The area towards the west of Geruwa largely consists of river flood plains and is subjected to annual flooding and inundation. The land use pattern consists of Sal forest, riverine forest, grasslands, rivers, settlement areas and agricultural lands. The connectivity of BNP and its buffer zone can be seen with Churia in the north and Katarniaghat Wildlife Sanctuary in India through Khata Corridor which forms part of the landscape scale programme for the conservation of tiger. The Karnali floodplain is very rich in biological diversity which supports various wildlife. The buffer zone is essential to fulfil the habitat and fodder needs of various wildlife such as tiger, elephant, rhino, black buck, swamp deer, spotted deer, sambar deer, Ganges river dolphin and white-rumped vulture, etc.

The Park's fauna and flora resources have been described, especially plant species, mammals, amphibians and reptiles, fish, birds, and insects and butterflies. A total of 839 species of flora have been estimated in the park. Among these, 170 are estimated to be vascular plants. Eight

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pteridophytes, 1 gymnosperm, 140 dicotyledons and 26 monocotyledons have been recorded (BPP, 1995, Sharma 1999 and DNPWC 2012) so far. The park consists of mainly three major vegetation types viz. (i) Chirpine forest, (ii) hill Sal forest and (iii) lower tropical Sal and mixed broad leaved forest. Chirpine and hill Sal forest are found in the Siwaliks and the later one in the foothills. Chirpine (*Pinus roxburghii*) is found above 500 meter in the northern Siwalik region. Sal is the dominant tree species (71%) of the park. The species found in the park are Karma (*Adina cardifolia*), Bot-Dhangero (*Lagerestromia parviflora*), Asna (*Terminalia tomentosa*), Barro (*Terminalia belerica*), Jamun (*Syzgium cumini*), Tantari (*Dillenia pentagyna*), Sindure/Rohini (*Malotus philipinensis*), Khair (*Acacia catechu*), Sisoo (*Dalbergia sisoo*), Simal (*Bombax ceiba*), and Vellor (*Trewia nudiflora*). Dhangero (*Woodfordia fruticosa*), Lwangful (*Lantana camara*), Besarma/ Bihaya (*Ipomea fistulosa*), and Titepati (*Artimissia dubia*) etc.

56 species of mammals, 438 birds, 52 herpetofauna, and 121 fish have been recorded from the park area (DNPWC 2012). Twenty-two species of mammals of the park are enlisted in CITES Appendices. The park is prime habitat for Royal bengal tiger (*Panthera tigris tigris*). Other symbolic mammalian species includes: Asian elephant (*Elephus maximus*), One-horned rhino (*Rhinoceros unicornis*), dolphin (*Platanista gangetica*), Swamp deer (*Cervus duvaucelli*), Black buck (*Antelope cervicarpa*), Hispid hare (*Caprologus hispidus*) and Common leopard (*Panthera pardus*). The park is rich in ungulate diversity. Out of a total 6 species of deer, 5 species such as Samber deer (*Cervious unicolor*), Spotted deer (*Axis axis*), Hog deer (*Axis porcinus*), Swamp deer (*Cervus duvaucelli*) and Barking deer (*Muntiacus muntjak*) are found in the park.

A population of over 100,000 people including about 60 percent Tharu community is spread over 17 Village Development Committees (VDC) around the park boundary except towards the north i.e. north of the Siwalik (Chure) ridge. In addition to indigenous tribal people, Tharu people have also immigrated from [Dang and Deukhuri Valleys](#). Tharu from Dang and Deukhuri make up a majority of Bardia's population. Other tribes called *Sonaha* live near the Karnali River and the western periphery of [Bardia National Park](#), who are historically engaged in extracting gold ore from river sediments and fishing. The major occupations of the people are agriculture and fishing. Most of the people are marginalized and landless people which is the main reason behind the encroachment in the buffer zone.

### ***Brahmadev Corridor***

The Bramhadev Corridor connects Shuklaphanta National Park with Doon Forest in India, which borders the eastern bank of Mahakali River. It is situated in Bhimdatta and Bedkot Municipalities of Kanchanpur District. The corridor spreads from the Terai to the Siwaliks region. The total area of the corridor is 14,812 ha of which 138 km<sup>2</sup> is forest corridor and 10 km<sup>2</sup> impact zone. The corridor has several religious places including Baijnath Dham, Siddhanath Temple, Bishnudham and Bishnu Mandir. It is currently unprotected.

The corridor is bottlenecked in Bhimdutta and Daijee. Sal (*Shorea robusta*) and Mixed Hardwood forests are the major forest types in the corridor.

The corridor is home to some rare and endangered species such as the tiger and Asian elephant. Other species are leopard, wild boar, blue bull, and Himalayan goral. There are

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increased sightings of wild animals and birds in the corridor, but a decrease in the fish population. The corridor has endangered Bijaya sal (*Pterocarpus marsupium*). In addition, Sal (*Shorea robusta*), Khair (*Acacia catechu*) and Sindure (*Mallotus philippensis*), Harro (*Terminalia chebula*), Barro (*T. belerica*), Bel (*Aegle marmelos*) and Amala (*Phyllanthus emblica*) are important plant species.

The impact area has 9,256 households, with a population of 48,815, of which 23,449 are male and 25,366 are female. The corridor has Bramhan, Chhetri, Janajati and Dalit peoples. Agriculture and livestock are main sources of income for the majority of households. A total of 4,603 households are managing 17 community forests with 2,884 ha of forest. People collect timber, poles, fuelwood, grass, thatch, edible fruits, medicinal plants and canes from the forest. Harro, Barro, Bel, Amala, Bamboo and Canes are the major NTFPs that households are collecting from the forest. About 96% of households are involved in firewood collection and 62 percent in fodder collection from the forest.

### ***Kamdi Corridor***

Kamdi corridor links Banke NP of Nepal and Shohelwa Wildlife Sanctuary of India. It covers 450 km<sup>2</sup> of Kohalpur Municipality, and Rapti Sonari, Duduwa and Narainpur Rural Municipalities in Banke District. Of the total forest area, 291 km<sup>2</sup> is forest corridor and 159 km<sup>2</sup> is impact zone. The forest area is dominated by sal forest and mixed forest. Over the last 20 years, the area of forest, agriculture, grassland and wetland have increased while shrubland has decreased significantly. The corridor is currently unprotected.

The corridor provides habitat for several animals including Elephant, Tiger, Four Horned Antelope, Barking deer, Blue bull, Common leopard, Jungle Cat and Wild cat. In addition, bird species including Great Hornbill, Red Jungle fowl, Kalij Pheasant, Indian Peafowl, Rose-ringed parakeet are recorded in the area. Key reptile species recorded in the corridor are Gharial, Golden Monitor lizard, Burmese Python and turtles.

The corridor is dominated by Khair (*Acacia catechu*), and Sal (*Shorea robusta*). Other major tree species are Asna (*Terminalia alata*), Karma (*Adina cardifolia*), and Sissoo (*Dalbergia sissoo*).

The corridor has 19,730 households with 101,399 people. Of these, 51,437 are female and 49,962 are male. Tharu is the main ethnic community in the southern part of the highway, while close to the highway there is the majority of immigrant population including Bramhan, Kshetri and Thakuri Indigenous groups and Dalit people. 49 CFUGs with 10,775 households are managing 9,741.77 ha of Community Forests.

Agriculture is the main occupation. Households keep livestock including goats; and fish farming is also a popular income source. A majority of households have experienced a decrease in their dependency on forest products particularly timber, poles, fuelwood, fodder and thatch. They collect NTFPs including medicinal plants such as Harro (*Terminalia chebuli*), Barro (*Terminalia belerica*), Kutki (*Picrorhiza kurroa*), Pipala (*Piper longum*) and Neem (*Azadirachta indica*).

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### ***Karnali Corridor***

The Karnali river corridor connects Siwaliks (Churia) region with India's Katarniaghat Wildlife sanctuary. Karnali corridor covers a total of 227 km<sup>2</sup> of Lamkichuha Municipality, Janaki Rural Municipality and Tikapur Municipality of Kailali District, and Rajapur Municipality of Bardia District, of which 149 km<sup>2</sup> is forest corridor and 78 km<sup>2</sup> is impact zone. The corridor is currently unprotected.

Forest covers around 60 percent of the corridor, however adjacent cultivated land and settlements present challenges to maintain the corridor. The corridor is bottlenecked in several areas and needs restoration through plantation.

The corridor provides an excellent environment for many rare and endangered species including tiger, one-horned rhinoceros and Asian elephant. In addition, the Gangetic dolphin is a key feature of this corridor. Other mammals are barking deer, blue bull, common hare, leopard, porcupine, rhesus macaque, spotted deer, striped hyena, and wild boar. Similarly, charismatic bird species such as Indian peafowl, sarus crane and vulture species are frequently sighted in the corridor. The corridor is also rich in fish species, with 74 fish species recorded. In addition, Gharial, Mugger Crocodile and Python are key reptile species in the corridor.

Sal (*Shorea robusta*) is the dominant species. Other species in the corridor are Asna (*Terminalia alata*), Khair (*Acacia catechu*), Sissoo (*Dalbergia sissoo*) and Karma (*Adina cordifolia*).

There are 34 community forest user groups with 12,127 households that are managing 1,420.97 ha forest in the corridor. These forest user groups have 316 members in the committee out of which 149 are female. Traditional agriculture, livestock and fishing are major occupations of these households. However, along the highway and main roads, they are involved in other businesses such as hotels, restaurants, and so on. Households depend on the forest mainly for fuelwood and fodder. They also collect NTFPs including Broom Grass (household purpose), *Bambusa vulgaris* (household purpose), *Terminalia bellerica* (medicinal plant), *Zizyphus mauritiana* (fruit), *Terminalia chebula* (medicinal plant), and *Piper longum* (medicinal herb).

### **Project Description:**

**Component 1:** national capacity and enabling environment for cross-sectoral coordination to promote forest and landscape conservation

**Component 2.** integrated planning for protected area buffer zones and critical corridors and their connectivity in the Terai Arc landscape

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**Component 3.** forest and species management for improved conservation of targeted protected area buffer zones and corridors and their connectivity in the Terai Arc landscape

**Component 4.** knowledge management and monitoring and evaluation

Safeguard Policies Triggered	Yes	No
Natural Habitats	X	
Pest Management		X
Indigenous Peoples	X	
Involuntary Resettlement	X	

### Summary of Key Safeguard Issues:

The proposed project is a Category "B" given that it is essentially a conservation initiative, expected to generate significant positive and durable social, economic and environmental benefits. Any adverse environmental and social impacts due to project activities to ensure effective management or involvement of indigenous people are minor and site specific and can be mitigated. Specific intervention sites within the targeted buffer zones and corridors where activities will be financed are not known as they would be chosen during project implementation.

***Policy on Natural Habitat*** – is triggered as the proposed project directly targets protecting and restoring species and their habitats; strengthening local communities' ability to conserve the natural resources they depend on.

***Policy on Involuntary Resettlement*** – While the proposed project is unlikely to cause displacement of people, the project does intend to increase the protection status of the three selected corridors under Component 2. This triggers the WWF's policy on Involuntary Resettlement as the proposed project is likely to restrict access to natural resources and livelihoods activities within the areas the project will work.

***Policy on Indigenous People*** – Given that proposed project activities will involve Indigenous Peoples as the main inhabitants living around of the PAs and in the Buffer zone and Corridors in the Terai Landscape among them Tharu, Magar, Tamang, Gurung, Tamang, Danuwar, Darai, Chidimar who are considered indigenous under the WWF policy on Indigenous Peoples. An Indigenous Peoples Planning Framework (IPPF) will be prepared to clarify the principles, procedures and organizational arrangements to be applied to indigenous peoples (IP) for the proposed project.

***Policy on Pest Management*** – The activities are not expected to trigger the policy on Pest Management, any agricultural extension activities targeting settlements in the NPAs will not include promoting the use of pesticides.

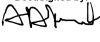
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**Describe any potential indirect and/or long term impacts due to anticipated future activities in the project area**

The project expects to achieve improved conservation and sustainable use of natural resources as its long-term impact of project interventions, which will be both environmentally and socially positive.

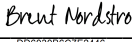
**Required actions:** (type of ESIA, ESMP, IPP, IPMP, RAP, consultations, disclosure)

Process Framework and Indigenous People Planning Framework will be prepared

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