

Identifying and Prioritizing Transboundary Protected Areas (TBPAs) for Effective Biodiversity Conservation: *The Indian Experience*


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A Protected Area (PA) is a clearly defined geographical space, recognized, dedicated and managed, through legal or other effective means, to achieve the long-term conservation of nature with associated ecosystem services and cultural values

(Dudley, 2008)

A Transboundary Conservation and Development Area (TBCA) captures the twin concerns of conservation taking place within a context of regional development and the juxtaposition and linkage of protected areas in a production land/seascape straddling an international boundary

(Sandwith et al, 2001)

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- ◆ **A TBPA is an area of land and/or sea that straddles or borders between states, sub-national units such as provinces and regions, autonomous areas and/or areas beyond the limit of national sovereignty or jurisdiction, whose constituent parts are especially dedicated to the protection and maintenance of biological diversity, and of natural associated cultural resources and managed cooperatively through legal or other effective means (*Sandwith et al, 2001*)**

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- ◆ **TBPAs are important mechanisms for helping achieve biodiversity and development goals, as well as peaceful cooperation among governments and communities.**
 - ◆ **Thus, a transboundary cooperative action is needed to serve as a highly strategic means of achieving regional integration and securing landscape-level conservation (Sandwith *et al*, 2001).**

Total Area of TBPA by Region

Region	TBPA Area (km ²)
North America	1,511,627.08
Central and South America	1,424,697.66
Europe	188,153.30
Africa	931,617.95
Asia	570,505.86
Global	4,626,601.85

Source: www.tbpa.net/tpa_inventory.html

Types of Transborder Protected Areas

- ◆ *Two or more contiguous protected areas across a national boundary*
- ◆ *A cluster of protected areas and the intervening land*
- ◆ *A cluster of protected areas without intervening land*
- ◆ *A trans-border area including proposed protected areas*
- ◆ *A protected area in one country aided by sympathetic land use over the border*

The Indian Initiative of Identifying TBPA's

- ◆ Of the 662 Protected Areas, 21 Protected Areas (Anon. 2008) fall along or adjacent to the Indian border covering Mountains, Forests, Desert and Coastal regions .
- ◆ Of these, 8 Protected Areas fall under Type One: Two or more contiguous protected areas across a national boundary, 4 PAs in Type Three: Cluster of protected areas without intervening land, 9 PAs in Type Five: A protected area in one country aided by sympathetic land use over the border.
- ◆ These sites represent 9 Biogeographic Provinces as defined by Rodgers *et. al* (2000).
- ◆ Eight sites fall in mountain regions, ten sites in forested regions, one site in Coast and two sites in Desert

Source: *WII, 2008*

Protected Areas along the Indian Border that could be declared as Transboundary Protected Areas (TBPAs)

S. No.	PA in	State	Biogeographic Provinces
1	Karakoram WLS	Jammu & Kashmir	1A
2	Changthang WLS	Jammu & Kashmir	1B
3	Khangchendzonga NP	Sikkim	2C
4	Dibang WLS	Arunachal Pradesh	2D
5	Valmiki NP	Uttar Pradesh	7B
6	Buxa NP	West Bengal	7B
7	Manas NP	Assam	9A
8	Sunderbans NP	West Bengal	8B
9	Dudhwa NP-Kishanpur-Lagga Bagga WLS	Uttar Pradesh	7A
10	Katerniaghat WLS	Uttar Pradesh	7A
11	Desert NP	Rajasthan	3B



*Source:
WII, 2008*

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Protected Areas along the Indian Border that could be declared as Transboundary Protected Areas (TBPAs)

S. No.	PA in	States	Biogeographic Provinces
12	Desert WLS	Gujarat	3B
13	Barsey Rhododendron WLS	Sikkim	2C
14	Pangolakha WLS	Sikkim	2C
15	Singalila NP	West Bengal	2C
16	Neora Valley NP	West Bengal	2C
17	Dampa WLS	Mizoram	9B
18	Phawngpui PWLS	Mizoram	9B
19	Yangoupokpi-Lokcha WLS	Manipur	9B
20	Gulf of Mannar Marine NP	Tamil Nadu	8B
21	Gumti WLS	Tripura	9B



Type One: Two or more contiguous protected areas across the Indian boundary



S. No	Biome type	Biogeographic zones	PA in India	State	Border Country	PA in Neighboring country
1	Mountains	1A	Karakoram WLS	J & K	Pakistan	Karakoram NP
2		1B	Changthang WLS	J & K	China	Changthang NR
3		2C	Khangchen-dzonga NP	Sikkim	Bhutan	Khangchend-zonga CR
4		2D	Dibang WLS	Arunachal Pradesh	China	Medong NR
5	Forested	7B	Valimiki NP	Uttar Pradesh	Nepal	Chitwan NP
6		7B	Buxa NP	West Bengal	Bhutan	Phipsoo WLS
7		9A	Manas NP	Assam	Bhutan	Royal Manas NP
8	Coast	8B	Sunderbans NP	West Bengal	Bangladesh	Sunderbans WLS

Source: WII, 2008

Type Three: A cluster of protected areas in India and in the border countries without intervening land for conservation



S. No	Biome type	Biogeographic zones	PA in	State	Border Country	PA in Neighboring country
1	Forested	7A	Dudhwa - Kishanpur	Uttar Pradesh	Nepal	Shuklaphata WLS
2		7A	Katerniaghat WLS	Uttar Pradesh	Nepal	Bardia NP
3	Desert	3B	Desert NP	Rajasthan	Pakistan	Nara Desert WLS
4	Desert	3B	Desert WLS	Gujarat	Pakistan	Kutchh WLS

Source: WII, 2008

Type Five: Protected area in India aided with sympathetic land use (Forested Area) in the border country



Biome type	Biogeographic zones	PA in	State	Border Country
Mountains	2C	Barsey Rhododendron	Sikkim	
	2C	Singalila NP	Sikkim	
	2C	Neora Valley NP	West Bengal	
	2C	Pangolakha WLS	Sikkim	Bhutan
Forested	9B	Dampa WLS	Mizoram	
	9B	Yangoupokpi-Lokchau NP	Manipur	
	9B	Phawngpui WLS	Mizoram	
	9B	Gumti WLS	Tripura	
Coast	8B	Gulf of Mannar Marine NP	Tamil Nadu	

Source: WII, 2008

Prioritization of TBPA

5 Ecological Criteria and 24 Indicators

- ◆ **Ecosystem Resilience. Size, connectivity and threat**
- ◆ **Life Support Systems: Ecosystem services provided by the systems.**
- ◆ **Unique Biodiversity: Number of species of conservation concern and ecosystems vested with endemism, rarity and representativeness**
- ◆ **Protected Areas with entities of Cultural, Aesthetic and Religious Significance.**
- ◆ **Economic Potential: In the context of specific resources to be conserved.**

Criteria and Indicators adopted for the analysis

Criteria	Indicator	Threshold Value	Points
Ecosystem Resilience	1. Number of similar clusters of PAs	≤2	1
		>2	2
	2. Total area of the cluster (km ²)	<1000	0
		1000-2000	1
		2000-3000	2
		>3000	3
	3. Contiguity of ecosystem across border	Continuous	2
		Separate patches	1
	4. Adequacy of the site to maintain ecosystem level processes	Adequate	1
		Needs addition	0
	5. Whether a prominent wildlife corridor	Yes	1
		No	0

Criteria and Indicators adopted for the analysis

Criteria	Indicator	Threshold Value	Points
Life Support Systems	6. Source of water	Significant	2
		Marginal	1
		Not at all	0
	7. Groundwater recharge	Significant	2
		Marginal	1
		Not at all	0
	8. Control soil erosion	Significant	2
		Marginal	1
		Not at all	0
	9. Value in terms of carbon sink	Significant	2
		Marginal	1
		Not at all	0
	10. Protection from Natural disaster	Significant	2
		Marginal	1
		Not at all	0

Source:
WII, 2008

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Criteria and Indicators adopted for the analysis

Criteria	Indicator	Threshold Value	Points
Unique Biodiversity	11. Number of globally threatened species	<2	1
		3-5	2
		6-8	3
		>9	4
	12. Number of Regionally threatened Species (Schedule 1 species of IWPA, 1972)	< 5	1
		6-10	2
		11-15	3
		>16	4
	13. Number of restricted range species	<2	1
		3-5	2
		6-8	3
		>9	4
	14. Number of flagship species	<2	1
		3-5	2
		6-8	3
		>9	4

Source:
WII, 2008

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Criteria and Indicators adopted for the analysis

Criteria	Indicator	Threshold Value	Points
Unique Biodiversity	15. Number of endemic species of plant and animals	<2	0
		3-5	1
		6-8	2
		>9	3
	16. Breeding site for species of conservation significance	<2	1
		3-5	2
		6-8	3
		>9	4
	17. Congregation area for species of conservation significance	0	0
		<2	1
		3-5	2
		6-8	3
		>9	4
	18. Congregation area for migrant species	Yes	1
		No	0

Source:
WII, 2008

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Criteria and Indicators adopted for the analysis

Criteria	Indicator	Threshold Value	Points
Cultural, Religious and Aesthetic significance	19. Cultural value	High	2
		Low	1
		No value	0
	20. Religious value	High	2
		Low	1
		No value	0
	21. Historical value	High	2
		Low	1
		No value	0
	22. Aesthetic value	High	2
		Low	1
		No value	0
Economic Potential	23. Opportunity for NWFP extraction	High	2
		Medium	1
		Low	0
	24. Ecotourism value	High	2
		Medium	1
		Low	0

Source:
WII, 2008

Ranking of TBPA's



Sites	Ecosystem	Ecosystem Resilience	Life Support Systems	Unique Biodiversity	Cultural, Religious and Aesthetic Significance	Economic Potential	Score	Border Country	Rank
Karakoram	Mountain	8	6	12	5	4	35	Pakistan	9
Changthang	Mountain	8	6	18	8	4	44	China	3
Kanchandzonga	Mountain	10	10	18	8	4	50	Bhutan	2
Dibang	Mountain	8	10	24	8	4	54	China	1
Dudwa	Forest	6	10	15	3	4	38	Nepal	7
Katerniaghat	Forest	5	10	15	2	4	36	Nepal	8

Source: WII, 2008

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Ranking of TBPA's



Sites	Ecosystem	Ecosystem Resilience	Life Support Systems	Unique Biodiversity	Cultural, Religious and Aesthetic Significance	Economic Potential	Score	Border Country	Rank
Valmiki	Forest	6	10	16	5	4	41	Nepal	5
Buxa	Forest	10	10	15	4	4	43	Bhutan	4
Manas	Forest	6	10	19	5	3	43	Bhutan	4
Sunderbans	Mangrove	8	7	17	3	4	39	Bangladesh	6
Deserts	Desert	9	0	12	4	2	27	Pakistan	10
Deserts WLS	Desert	9	0	12	4	2	27	Pakistan	10

Source: WII, 2008

Framework for Implementation

- ◆ Identifying and promoting common values
- ◆ Involving and benefiting local people
- ◆ Obtaining and maintaining support of decision-makers
- ◆ Promoting coordinated and co-operative activities
- ◆ Achieving coordinated planning and protected area development
- ◆ Developing co-operative agreements
- ◆ Working towards funding sustainability
- ◆ Monitoring and assessing progress
- ◆ Dealing with tension or armed conflicts

The Way Forward

In 2003 the EUROPARC Federation established a certification system for “exemplary transboundary cooperation between protected areas” according to a set of criteria in the form of seven questions:

- ◆ **Do the parks have a common vision for sustainable development in the region?**
- ◆ **Is an agreement in place, which is signed by the parks or at political decision-making levels and which guarantees the continuity of the cooperation?**
- ◆ **Does a joint work programme exist, which defines the main areas of cooperation in the individual fields of work?**

The Way Forward

- ◆ Are mechanisms for direct cooperation between protected area staff, the regular exchange of experience, and the implementation of joint meetings and decisions established?
- ◆ Does observation of changes in parks' natural values through joint monitoring and the holding of regular exchanges of data take place?
- ◆ Are steps taken to ensure that communication between the protected areas is not held back by language barriers?
- ◆ Are joint transboundary projects in existence and has their financing been secured?
- ◆ Choice between “Top-down” and “Bottom-up” approach

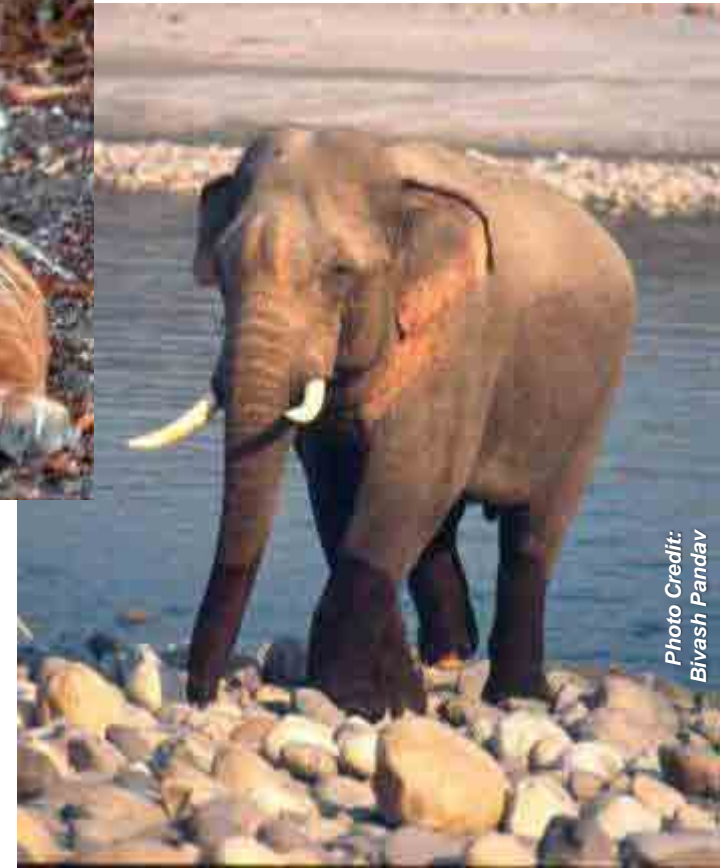
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The Way Forward

- ◆ India has adopted a pragmatic approach that encompasses obtaining high level policy agreements among governments through Memorandum of Understanding (MoUs) and also initiating a 'bottom-up' approach for enhancing cooperation at the ground level by organizing periodic meetings at the park level especially with Nepal and Bhutan.
- ◆ The initial steps for regional cooperation through TBPA's have been taken keeping in view the geo-political situation in the region.
- ◆ Efforts are underway to further enhance coordination and cooperation at the park level for strengthening conservation at the park level for a range of landscape dependent wild animal species such as elephant and tiger.

Landscape-dependent wild animal species protected by TBPA

India and Nepal



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Landscape-dependent wild animal species protected by TBPA's

India and Bangladesh



Photo Credit:
Pradeep Vyas

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Landscape-dependent wild animal species protected by TBPA's

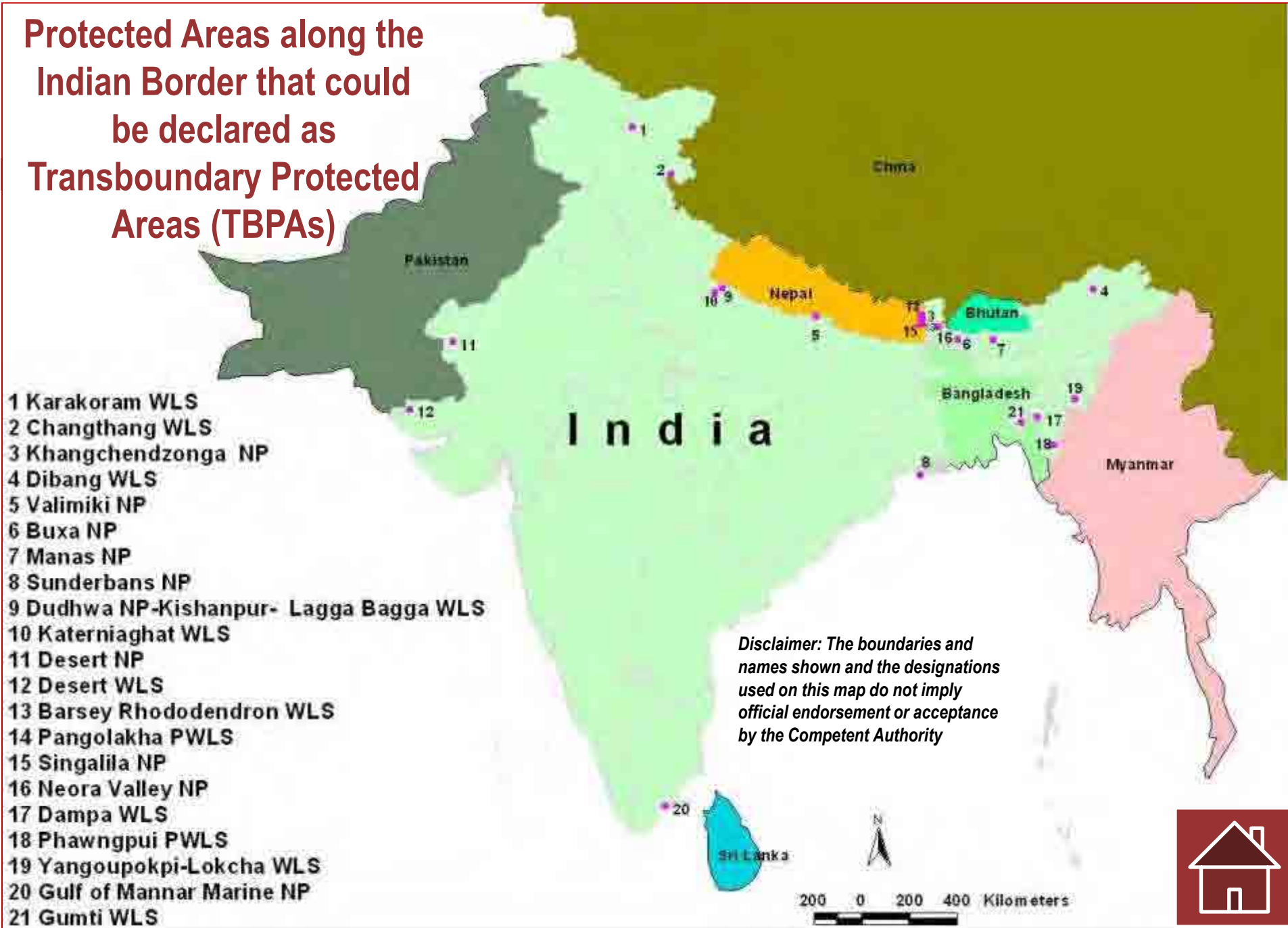
India and Bhutan



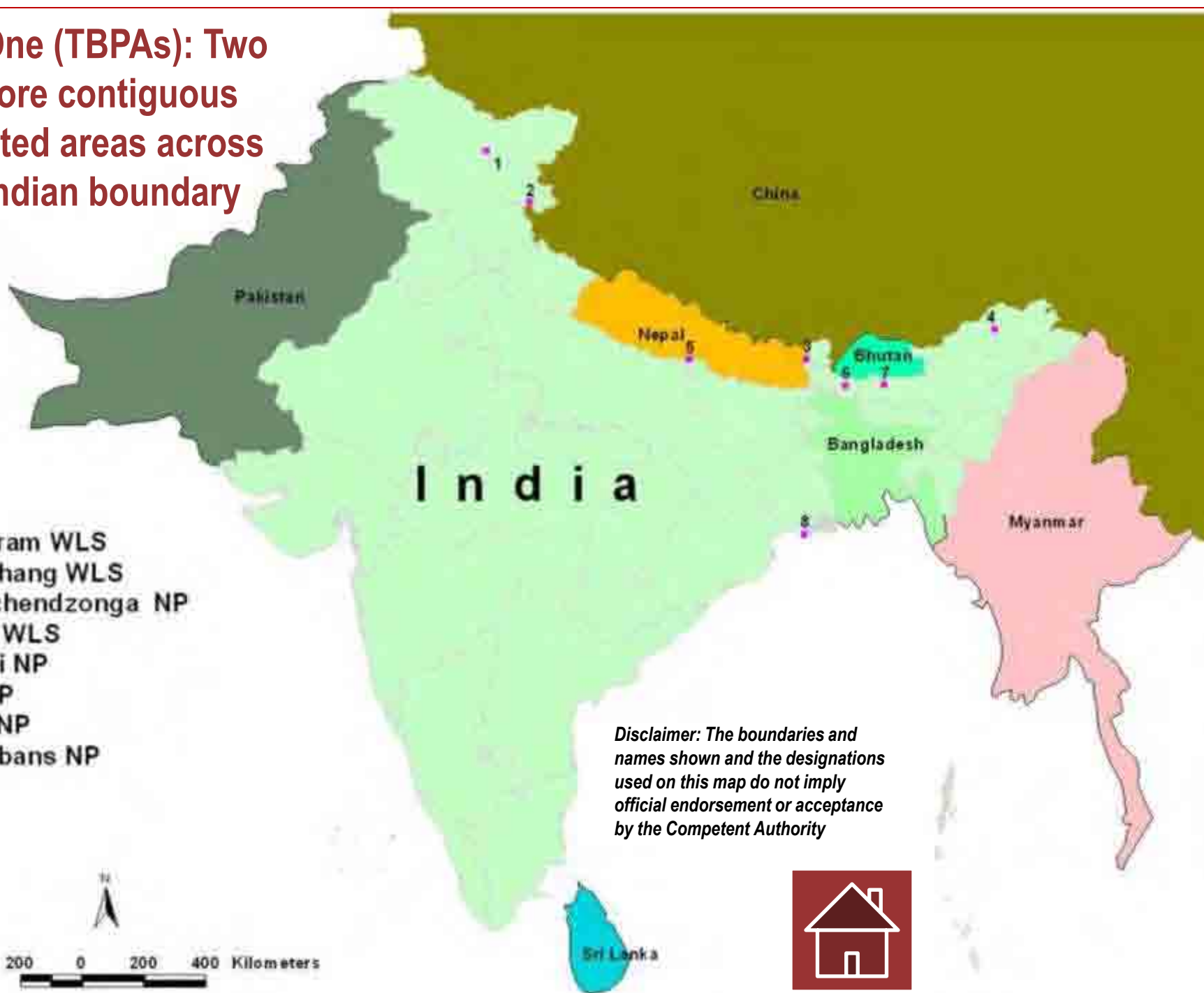


Thank you....

Protected Areas along the Indian Border that could be declared as Transboundary Protected Areas (TBPAs)



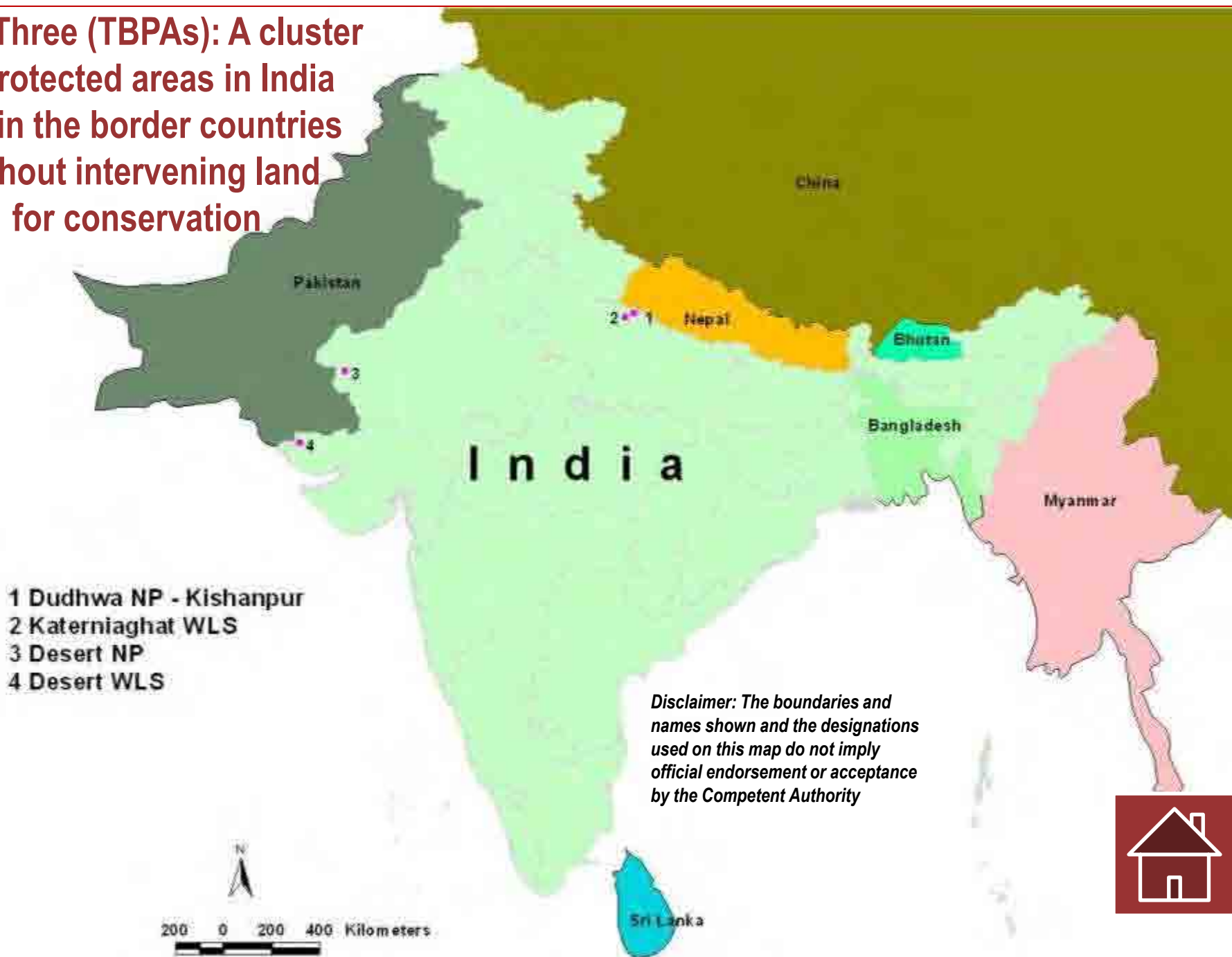
Type One (TBPAs): Two or more contiguous protected areas across the Indian boundary



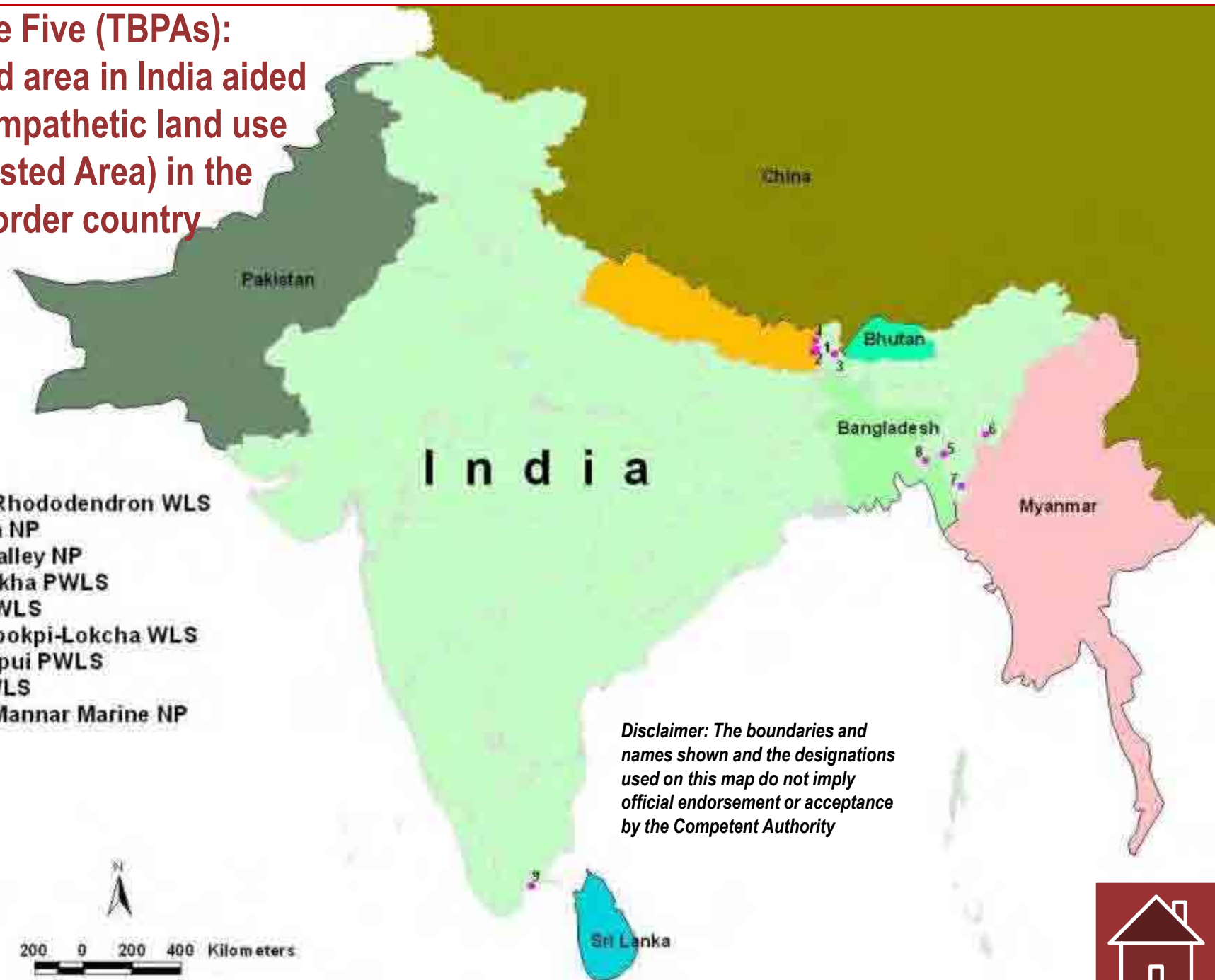
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Type Three (TBPAs): A cluster of protected areas in India and in the border countries without intervening land for conservation

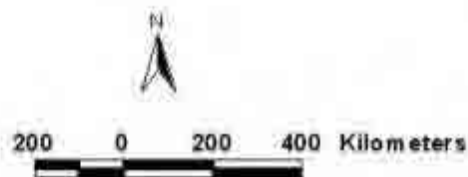


**Type Five (TBPAs):
Protected area in India aided
with sympathetic land use
(Forested Area) in the
border country**



Ranking of Transboundary Protected Areas

- 1 Dibang WLS
- 2 Khangchendzonga NP
- 3 Changthang WLS
- 4 Buxa NP
- 4 Manas NP
- 5 Valmiki NP
- 6 Sunderbans NP
- 7 Dudhwa
- 8 Katernighat
- 9 Karakoram WLS
- 10 Desert NP
- 10 Desert WLS



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