

A Cooperation Framework for the Conservation of the Amur Tiger and Amur Leopard in the Tumen River Area

November 2012

NEASPEC Secretariat

Executive Summary

Amur tigers and Amur leopards are two critically endangered feline animals that witnessed dramatic demographic reduction over the past century. Historically, Amur tigers ranged across most forested ecosystems of northeastern China, the Korean peninsula, and the southernmost regions of the Russian Federation. However, there are only about 500 Amur tigers currently left in the wild and their habitats have been shrunk dramatically. The leopards are currently on the brink of extinction, with only about 30 individuals left in the wild.

In order to protect Amur tigers and Amur leopards, Governments of China and Russian Federation have made significant efforts for strengthening domestic policy measures including the establishment and expansion of protected areas, and the scale-up of the financial and human resources. NGOs and international organizations have also played an important role in improving technical measures by providing financial resources, training programmes, and conducting monitoring activities. However, various proposals and plans from the governments and other stakeholders suggest that the conservation of the feline animals requires further efforts for (1) expanding protected areas beyond national borders, (2) maintaining population of prey, (3) engaging local community and the public in protection work, and (4) improving technical capacity of conservation work.

In particular, there is a great need for strengthening transboundary cooperation as achieving goals of domestic action requires supporting action from neighboring protected areas across the borders. During the last decade, there has been growing webs of communication and collaboration across the borders, but the existing cooperation needs to be further strengthened by having a partnership platform that brings all stakeholders together to share information and undertake joint action, thereby making transboundary cooperation more efficient and effective.

In this regard, the establishment of the NEASPEC Partnership for Tiger and Leopard Conservation is proposed as a key recommendation of the NEASPEC Project on Nature Conservation in Transboundary Areas in North-East Asia. The partnership's major goals and roles would be the facilitation of (1) communication for information exchange and knowledge sharing across borders, (2) collaboration among stakeholders for joint work including joint survey and monitoring on the border, joint anti-poaching activities, capacity training program, sustainable forest management, etc, and (3) coordination of domestic policies responding to complex conservation issues including ecological corridors and transboundary protected areas.

In order to carry out the roles, it is proposed that the Partnership should be well-represented by all major stakeholder groups including governments and non-governmental actors such as NGOs and international organizations. The partnership should also be supported by solid operating bodies such as the coordination committee, working groups, and activity /information center(s).

The process of launching the NEASPEC Partnership is proposed as follows.

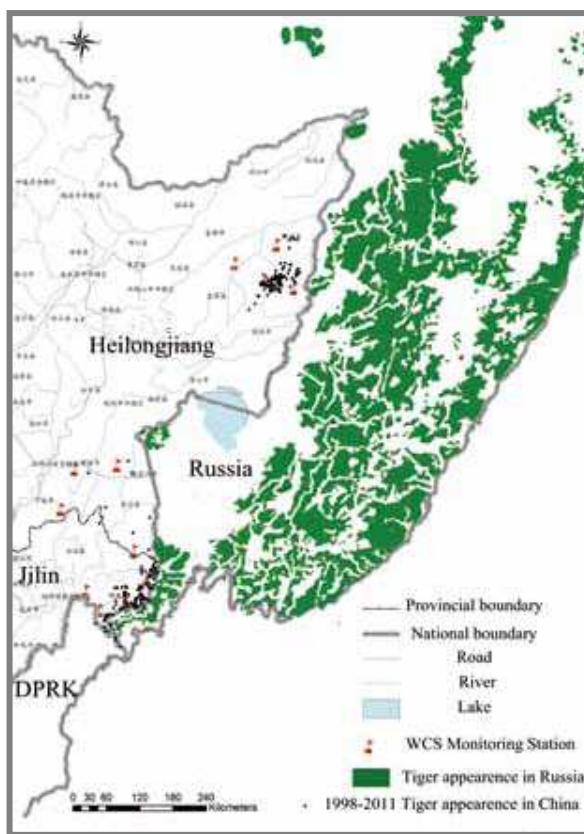
- Expert review: This proposal was reviewed by the concluding meeting of NEASPEC project on transboundary nature conservation held on 21-23 July 2012 in Vladivostok.
- Review by the 17th Senior Officials Meeting (SOM): The 17th SOM reviews the proposal and makes a decision.
- Launching an intergovernmental/multi-stakeholder process: Should the SOM decide to establish the partnership platform, the Secretariat will facilitate an intergovernmental/multi-stakeholder process from late 2012 or early 2013.

1. Nature Conservation of the Amur Tiger and Leopard in Transboundary Areas

1.1 Current status of the Amur tiger and Amur leopard

1. Amur tigers and Amur leopards are two critically endangered feline animals that witnessed dramatic demographic reduction over the past century. Historically, Amur tigers ranged across most forested ecosystems of northeastern China, the Korean peninsula, and the southernmost regions of the Russian Federation.¹ However, there are only about 500 Amur tigers currently left in the wild and their habitats have been shrunk dramatically. Nowadays, 95 percent of the tigers are inhabited in the Sikhote-Alin Mountain area in Russia while the rest of them are distributed in Jilin and Heilongjiang provinces of China adjacent to the Chinese-Russian border (see figure 1). Although some surveys indicate that there are Amur tigers left in the northernmost regions of DPRK, no concrete evidence and specific population number have been verified.

<Figure 1> Amur Tiger Distribution in China and the Russian Federation (as of 2011)



Source: 2011 Wildlife Conservation Society China Program

¹ Henry, P. et al. (2009). "In situ population structure and ex situ representation of the endangered Amur tiger." *Molecular Ecology*.

2. Although the population of Amur tigers stayed stable over the past few years, molecular genetic studies suggest that their low genetic diversity makes them exposed to a high risk of extinction. Among extant six tiger subspecies, Amur tiger has the lowest genes variance and hence they are particularly vulnerable to natural catastrophes such as fires or diseases. In addition, molecular genetic studies also indicate that the Caspian tiger, an extinct tiger subspecies dating back to the 1970s, share a close phylogenetic relationship with the living Amur tigers, which has important implication for imputing the origins of there tiger subspecies and for modern conservation programs.²

3. Amur leopards used to live in the south of the Russian Far East, forested mountain areas of northeastern China, and the Korean peninsula. The leopards are currently on the brink of extinct, with only about 30 individuals left in the wild. In particular, about 20 are inhabited in the Amur River Valley along the China-Russia Border while about 10 live in Ussuri River Valley along the China-DPRK border. The only remaining habitats for the Amur leopard are the Sikhote-Alin Mountains of the Russian Far-East and the Hunchun Nature Reserve in Jilin Province, China. The Amur leopard population in China was formed as a result of migration from the Russian Federation. This confined habitat scope and small population size make leopards extremely vulnerable to human-made and natural catastrophe.

1.2 The Importance of Cooperation on the Amur Tiger and Amur Leopard Conservation in the Transboundary Areas

4. Amur tigers and Amur leopards are territorial; individuals of the same sex require non-overlapping home ranges. In particular, adult female tigers require 488 km² of non-overlapping habitat at average while adult male tigers could travel very long distance in search of potential mates, with a record of up to 1000 km away from source populations. In terms of the Amur leopard, home range of the adult female leopards ranges from 35 to 45 km² while males will use an area 4-6 times larger than that of females³. Moreover, the home range is highly correlated with the density of prey. As the mixed Korean pine/deciduous and temperate deciduous forests in the Russian Far East, northeastern China and DPRK, in which Amur tigers and leopards are living, has a low prey density, the home ranges of tigers and leopards are even bigger than the average range to survive and raise healthy cubs. Hence, the territorial nature and the high dispersion capability of tigers and leopards require a huge area of land to ensure their population persistence.

² Driscoll, C.A. et al. (2009). "Mitochondrial phyogeography illuminates the origin of the extinct Caspian tiger and its relationship to the Amur tiger." *PLoS ONE*.

³ Li, Z. X. et al. (2010). "Study on the Potential Tiger Habitat in the Changbaishan Area, China" *China Forestry Publishing House*.

5. Moreover, small and isolated reserves impose high risks of extinction on large carnivores, such as tigers and leopards. For instance, in order to maintain a population of 20 breeding female tigers, approximately 8,000 km² of well-connected habitat is needed.³ In China, there is no reserve covers such a large area. This implies that there is a high possibility for Amur tigers and Amur leopards around the border area to migrate across borders for survival and reproduction. The population of Amur tigers surviving in the Chinese territory is a small and fragmented subspecies migrating from the Russian Far-East. Also, all the remaining Amur tigers and Amur leopards are near the countries' borders. The rehabilitation of these two animals critically relies on the connection between reserves domestically and internationally. In this regard, close collaboration ranging from simple communication to full coordination of action among governments, authorities of protected areas, local communities, and conservation groups between Russian and China becomes very critical to ensure the exchange of tigers and other native wildlife

2. Conservation of Amur tigers and Amur leopards in North-East Asia

2.1 National Policies and Programmes

6. The Russian Federation has a long story of establishing protected areas for Amur tigers and Amur leopards in the Tumen River area. There are three major protected areas, including Kedrovaya Pad (1916), Barsoviy Federal Zakaznik (1979), and Borsovo Plateau Regional Zakaznik (1996).

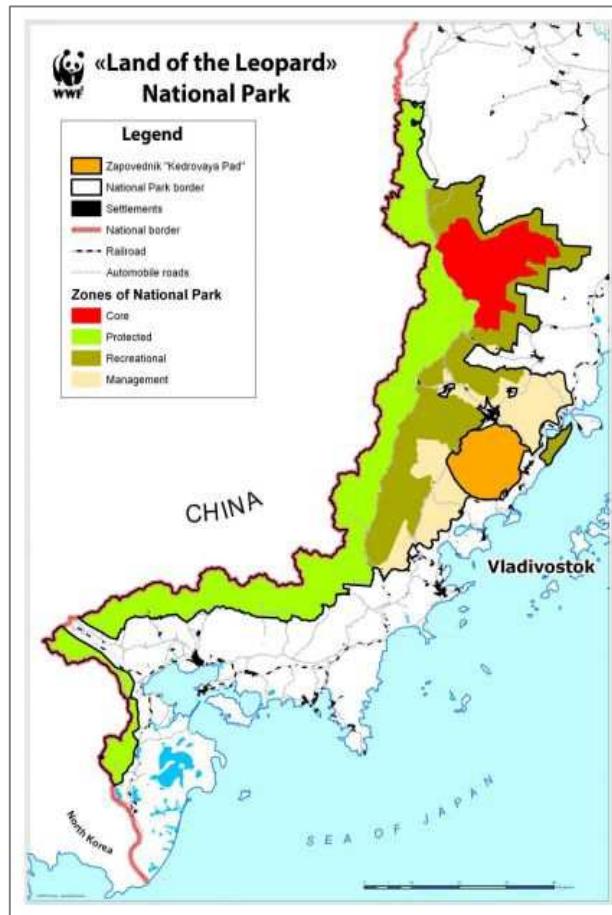
7. In 2008, the Russian Government issued a decree on the creation of a federal-level Leopardovy Zakaznik in Primorsky Krai by merging Barsoviy Federal Zakanik and Borisovo Plateau regional Zakanik into one protected area which covers 169,429 ha, encompassing Khasansky, Ussuriysky and Nadezhdensky districts of the Primorsky krai. Prior to the decree, the two protection areas had been managed by different state agencies, which sometimes led to confusion and inefficiency. Furthermore, its neighboring protected area, Kedrovaya Pad Nature Reserve, will be also managed by the same entity, Ministry of Natural Resource. This transfer of jurisdiction to a single authority is expected to improve management capacity of the protected area, ensure concordant leopard and tiger conservation, and enhance international coordination with its neighboring protected areas in China.

8. Furthermore, the government of the Russian Federation approved the establishment of the Leopard National Park which covers 262,000 hectares in the southwest of Primorsky Krai in April 2012. The national park not only embraces the entire area of the Leopardovy Zakaznik but also expands to the area adjacent to the Hunchun Nature Reserve in Jilin Province, China (See

⁴ Luo, S.J. (2010). "The status of the tiger in China." *CATnews Special Issue 5*.

figure 2). The park consists of two major parts: the strictly protected areas in the Borisovo Plateau with 300,000 hectares and the area with 1.2 million hectares along the Sino-Russian border. All farmlands, lands around towns and military territories will be included in the economic development zone (38 thousand ha), and private ownership of such areas will not be altered. The remaining forest areas (72 thousand ha) are included in the recreational zone, where development of eco-tourism is planned.

<Figure 2> Land of the Leopard National Park



Source: "Land of the Leopard National Park is established."

<http://www.wwf.ru/resources/news/article/eng/9425>

9. China started to establish protected areas much later than the Russian Federation; however, China has also made remarkable progress in promoting biodiversity conservation in the Tumen River area over the past decades. First, institutional mechanisms have raised the level of protection. The Jilin Hunchun Nature Reserve established in 2001 as a provincial level reserve was upgraded into a state-level Nature Reserve status in 2005. Since the Hunchun Nature Reserve

was upgraded from provincial level to state level, the State Forestry Administration and the Jilin Province Forestry Administration have already allocated 12 million RMB (around 1.8 million USD) for infrastructure development in the Reserve. The Hunchun Forestry Bureau also contributed 10 million RMB (around 1.5 million USD) to carry out protection activities in the Hunchun Nature Reserve, focusing on developing a monitoring system with the application of Management Information System (MIST), strengthening law enforcement on anti-poaching, creating public education programs and enhancing international cooperation. Amur tiger conservation work in Heilongjiang Province has also progressed over the past decade. Field surveys and monitoring data showed that the estimated number of the Amur Tiger in 2000 was 5.5, which increased to 12 in 2006. According to the 2006-2007 monitoring data, the number of tigers stabilized around 10-14 tigers in Heilongjiang Province in 2007.

10. Furthermore, in September 2010, the Chinese State Council approved in principle the "China National Biodiversity Conservation Strategy and Action Plan (NBSAP) 2011-2030" which defines the objectives, guiding principles, strategic measures for the work on biodiversity conservation in China in the coming 20 years. In particular, the NBSAP identified the hilly plain region of northeastern China as one of priority areas of inland terrestrial biodiversity conservation, which covers entire area of Liaoning, Jilin and Heilongjiang Provinces. It also specified that the conservation priorities in those areas will focus on the establishment of biodiversity corridors between cross-boarder nature reserves to protect big catamounts such as Amur tiger and Amur leopard. The NBSAP proposed a demonstration project on the establishment and management of transboundary protected areas. This proposed project intends to (1) undertake surveys and study tours on transboundary wild animal resources and habitats; (2) study and propose methods for establishing and managing transboundary protected areas; (3) explore and establish management and monitoring systems of transboundary protection; and (4) undertake pilot demonstration projects.

2.2 Bilateral Initiatives

11. The Governments of China and the Russian Federation operate the Sub-Committee of Transboundary Nature Conservation and Biodiversity Protection under the supervision of the Environmental Cooperation Committee of China-Russia Prime Ministers' regular meeting, which was established in 2006. The 5th Sub-Committee Meeting held on 5-6 May 2011 in Xi'an, China formulated a work plan for constructing a nature conservation network between China and the Russian Federation in the Heilongjiang/Amur River area. This work plan was reviewed and approved by the 6th Environmental Cooperation Committee Meeting on 2 June 2011 in Harbin, China. This committee meeting also recognized the efficient cooperation and outcomes achieved under the framework of "Agreement on the Chinese-Russian-Mongolian Dauria International Nature Conservation" and therefore agreed to establish an expert group to study the common

measures for protecting the Amur tiger in Changbai Mountain and Wangda Mountain in the Chinese-Russian border areas.

12. In 2010, Jilin Province of China and neighboring Primorsky Krai of the Russian Federation agreed to establish the first cross-boundary protection zone for Amur tigers. The zone straddles the border along Jilin province and Primorsky Krai, where both side enforced anti-poaching measures. As part of the agreement, Jilin and Primorsky plan to step up the amount of information they share and adopt identical monitoring systems for Amur tigers and their prey.

13. During the 6th International Ecological Forum “Nature without Borders” held in Vladivostok on 19-20 July 2012, both Russian and Chinese experts put forward to establish joint expert group to enhance Amur tiger conservation in transboundary areas. The main purpose of the joint expert group is to initiate the Sino-Russian Transboundary Area Network. The Network aims to (1) enhance information and experience exchange on Amur tiger and their habitats; (2) improve Amur tiger and Amur leopard monitoring; (3) strengthen ecological protection of Amur tigers and Amur leopards in Sino-Russian border areas; (4) promote environmental education and public awareness.

2.3 Global Initiatives

14. In 2008, the Global Tiger Initiative (GTI) was developed and funded by the World Bank to ally itself with thirteen tiger range countries, international organizations, private sectors and civil society to prevent the extinction of wild tigers. Under this initiative, the International Forum on Tiger Conservation (also known as the “Tiger Summit”) was held in St. Petersburg on 23 November 2010 with the participation of thirteen government leaders, including Russian Prime Minister Vladimir Putin and Chinese Premier Wen Jiabao, who signed the St. Petersburg Declaration affirming their commitment to save wild tigers from extinction. This was the first high-level global meeting with an agenda focused on saving endangered tiger species. The Forum endorsed a Global Tiger Recovery Program (GRTP) that includes urgent and comprehensive national and international actions to double the number of tigers across their respective country ranges by 2020.

15. Particularly, the GRTP targets increase of tiger population by 100 percent and 50 percent in China and Russia, respectively. In addition, the GRTP developed National Tiger Recovery Priorities (NTRP) to incorporate a priority set of concrete project activities to be implemented to achieve national goals. The NTRP comprises of seven major components, including (a) habitat management, (b) controlling prey and tiger poaching, (c) institutional strengthening and capacity building, (d) tiger human conflict and community engagement, (e) controlling illegal trade and reducing demand, (f) scientific monitoring, surveys and research, and (g) transboundary management.

<Table 1> National Plans under Global Tiger Recovery Program

Priority Activities	China	Russia
Habitat management	Conservation, extension and amelioration of wild tiger habitat, and trial reintroduction	Strengthening protected area network
Combating poaching and illegal trade	Strengthening law enforcement	Preventing human-tiger conflicts
Transboundary collaboration	Improve communication and information exchange with other TRCs at different levels, especially or local law enforcement agencies in borders and ports	Strengthen interdepartmental international cooperation, first of all with the Government of China.
Community engagement	Coordination of wild tiger conservation with local society and economic development	Raise public awareness of the Amur tiger as a species of unique national and global value
Increase the effectiveness of tiger and habitat management	Strengthening intuition capacity, highlighting improving monitoring & patrolling system and capacity for managing wild tiger populations and their habitats	Improving tiger and monitoring and research, especially the methodological framework for Amur tiger monitoring

Source: "Global Tiger Recovery Program 2010-2022" Global Tiger Initiative (2011)

3. Nature Conservation in Transboundary Areas

16. In nature, animals and plants are distributed regardless of national borders while the biodiversity management is based on the political delineation. Ecosystems and species across national borders may suffer from conflicting protection management and land use practices. For example, poachers can exploit the advantage of geo-political borders and gain more chance to flee, since the communication and coordination between two governing bodies can slowdown the response to illegal hunting.

17. There are over one hundred protected areas along international borders among North-East Asian countries, of which one-tenth are categorized as strictly protected areas or national nature reserves. As transboundary areas often remain intact from human activities, ecosystem under provincial and national protection areas are not confined within the designated zones but extended over the political borders. In particular, about two dozens of protected areas adjoin its neighboring protected areas across international borders. This situation requires transboundary

cooperation, ranging from simple communication to full coordination of action among governments, authorities of protected areas, local communities, and conservation groups.

18. In order to address management problems associated with the mismatch between ecosystem and political borders, various forms of transboundary natural resource management arrangements have been developed. Worldwide, at least 188 transboundary conservation areas, spanning the borders of 122 countries have been established.⁴ Transboundary nature conservation has been recognized as a key approach to conservation and wilderness preservation purposes.⁵ In particular, transboundary nature conservation brings ecological benefits through enlarging nature reserves. The increase in the spatial size of reserves will provide more and varied undisturbed habitat, native vegetation and therefore more niche for more species⁶. Connecting several separated reserves into a large one will be beneficial to territorial animals with large home range and migratory capability, such as the Amur tiger and Amur leopard. As discussed in the previous section, connection between the small and fragmented subspecies in Tumen River area and the large group in Russian Far-East plays a critical role in rehabilitation of Amur tigers in China.

19. Moreover, transboundary nature conservation could create coordination mechanisms among national protected areas adjoining international borders or unified protected areas. The establishment and maintenance of transboundary nature conservation initiatives requires close cooperation across political borders, thereby functioning as a solid cooperation platform for among various stakeholders. This brings about political benefits. International Union for Conservation of Nature (IUCN) pointed out that transboundary nature conservation in certain circumstance becomes a vehicle to solve conflicts and promote peace. In certain cases these areas of environmental cooperation can be classified as Parks for Peace (often called Peace Parks). They are committed to the maintenance of biological diversity, but they are also specifically designed to promote peace and cooperation. Although this type of transboundary nature conservation has nothing much to do with North-East Asian countries, there is no denying that transboundary cooperation can enable broader political collaboration between officials from adjacent countries (both at the national, regional and local level) and may resolve differences on an issue of relatively low political importance.

3.1 Definition and categories

⁴ Besançon, C. and Savy, C. (2005). “Global list of internationally adjoining protected areas and other transboundary conservation initiatives.” *Transboundary Conservation: A New Vision for Protected Areas*

⁵ Trevor Sandwith and Charles Besançon. (2005). “Trade-offs among multiple goals for transboundary conservation.” *Wilson Center*

⁶ Jamie MacCallum and Micheal Schoon. *International Union for Conservation of Nature*

20. Transboundary nature conservation can be divided into four major categories, including Transboundary protected areas, Transboundary conservation areas, Parks for Peace and Transboundary migratory corridors (see table below).

<Table 2> Typology of Transboundary Conservation Initiatives

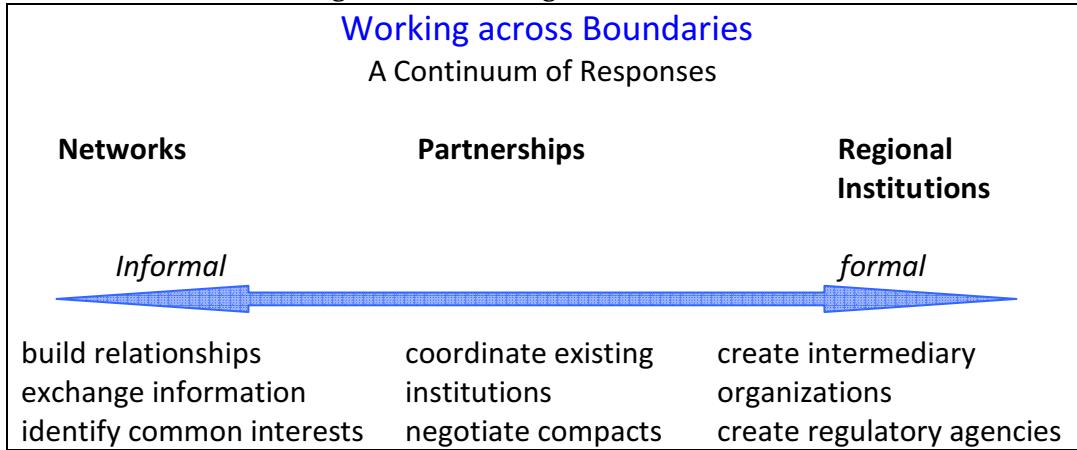
Name	Definition	Typical examples	Other forms
Transboundary protected areas	An area of land and/or sea that straddles one or more borders between states, sub-national units such as provinces and regions, autonomous areas, and/or areas beyond the limit of national sovereignty or jurisdiction, whose constituent parts are especially dedicated to the protection and maintenance of biological diversity, and of natural and associated cultural resources, and managed cooperatively through legal or other effective means.	<ul style="list-style-type: none"> • La Amistad International Park between Costa Rica and Panama • The Kgalagadi Transfrontier Park between Botswana and South Africa • The Neusiedler See/Seewinkel - Fertö Hansag Transfrontier Park between Austria and Hungary 	<ul style="list-style-type: none"> • Transboundary parks • Cross-border parks • Transfrontier protected area complexes • Adjoining protected areas transfrontier parks
Transboundary conservation areas	Land and/or sea that straddle one or more 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 form a matrix that contributes to the protection and maintenance of biological diversity, and of natural and associated cultural resources, as well as the promotion of social and economic development, and which are managed cooperatively through legal or other effective means.	<ul style="list-style-type: none"> • The Maloti-Drakensberg Transfrontier Conservation and Development Area (Lesotho-South Africa) • The cooperation between the Palatinate Forest Nature Park – Northern Vosges Regional Natural Park (Germany-France) • Sungai Kayan Nature Reserve and the proposed Pulang Tau National Park (Indonesia-Malaysia). 	<ul style="list-style-type: none"> • Transfrontier Conservation Areas
Parks for Peace	Transboundary protected areas that are	<ul style="list-style-type: none"> • The Si-a-Paz project 	

	formally dedicated to the protection and maintenance of biological diversity, and of natural and associated cultural resources, and to the promotion of peace and cooperation.	(Costa Rica – Nicaragua) • The Waterston-Glacier International Peace Park (Canada – USA)	
Transboundary migratory corridors	Areas of land and/or sea in two or more countries that are not necessarily contiguous, but are required to sustain a biological migratory pathway, and where cooperative management has been secured through legal or other effective means.	• The Palearctic Flyway (Siberia to Senegal) • European Green Belt • The Meso-American Corridor	

3.2 Key steps for establishing transboundary nature reserves

21. The theory and practice of transboundary conservation suggests that there is no single model for working across boundaries. According to IUCN, examples from around the world suggest there is a continuum of approaches—from informal networks, to more formal partnerships, to regional institutions (see figure 3). The distinction between a network and a partnership, or a partnership and a regional institution, is not always clear, and these categories are intentionally broad. Within each are various models and approaches that also range from informal to formal. Transboundary conservation initiatives tend to follow a progression from informal to more formal governance and implementation as people begin to think and act regionally.

<Figure 3> Working across Boundaries



Source: IUCN

22 While there is no model per se, IUCN WCPA's *Transboundary Protected Areas for Peace and Cooperation* offers the following guidelines, emphasizing the need to adapt these prescriptions to local conditions:

- 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 conflict

4. Strengthening Transboundary Cooperation in the Tumen River Area

23. As a home to Amur tigers and Amur leopards, the Tumen River Area has become central to various initiatives of governments, international organizations and NGOs for strengthening transboundary cooperation for nature conservation. In particular, there are a handful of constructive plans to develop transboundary nature conservation mechanisms in the Tumen River area over the past two decades.

4.1 Existing multilateral/international initiatives and proposals

UNDP/UNESCO: Lower Tumen River Area Transboundary Biosphere Reserve Proposal

24. The United Nations Educational, Scientific and Cultural Organization (UNESCO) together with the United Nations Development Programme (UNDP) conducted a feasibility study on the establishment of the Lower Tumen River Area Transboundary Biosphere Reserve in 2001. Based on the review of conservation work from June 2002 to April 2004, UNDP/UNESCO proposed to establish a Transboundary Biosphere Reserve in the Lower Tumen River basin within China, DPRK, and the Russian Federation in its project final report. This proposal defined the boundaries and zonation for the protected area and suggested that the Transboundary Biosphere Reserve (TBR) was developed to coordinate conservation of ecological zones and corridors divided by international borders. This proposal also recommended organizing a Lower Tumen River Area TBR Coordination Council, in order to organize some crucial follow-up activities including fund raising, field study coaching, public education programs, anti-poaching programs, monitoring programs and forestry management programs.

NEASPEC: National Conservation Strategy of NEASPEC- Saving the Flagship Species

25. Between 2005 and 2007, officials and experts from NEASPEC member countries worked jointly on a nature conservation programme, identifying the flagship species of North-East Asia and developing a conservation strategy. After conducting the research on a nature conservation strategy for the flagship species, NEASPEC proposed priority action plans for the protection of each flagship species. For Amur Tiger and Amur Leopard protection, NEASPEC proposed several key strategies: increasing prey density, improving anti-poaching activities, facilitating international cooperation, promoting public awareness on conservation needs, supporting capacity building on habitat management, monitoring and community development.

UNDP/GEF: Tumen River Strategic Action Program

26. The UNDP/GEF Tumen River Strategic Action Programme was proposed specially to ensure the preservation and protection of the region's unique environmental assets for future generations, while at the same time allowing for the ecologically sustainable economic development in the area. This action programme proposed five principle interventions for nature conservation in TumenNET area. The interventions are coordination of environmental protection with international plans, coordination of environmental protection with national economic plans, improvement of biodiversity conservation, improvement of international cooperation in the management of Tumen River pollution, and policy measures to prevent and manage industrial pollution.

Heilongjiang and Jilin forestry Departments: Workshops on Recovery of the Wild Amur Tiger Population in China- Progress and Prospect

27. Heilongjiang Forestry Department and World Conservation Society (WCS) worked together on an international workshop: the Wild Amur Tiger Population Recovery Action Plan in 2000, which provided strategies and plans of tiger conservation. After the workshop, the Forestry Administrations of Heilongjiang and Jilin, with the collaboration of WCS and support from the State Forestry Administration, conducted a series of conservation projects in northeastern China. In 2002, another workshop on the progress of recovery program was held in the Jilin Hunchun Nature Reserve to review the conservation work over the past two years and as well as to plan future work in the region. These two workshops proposed a comprehensive recovery plan, highlighting six priority actions: the establishment of conservation network, international cooperation improvement, poaching reduction, forest management improvement, facilitation of a public education program, development of a monitoring system, the Chinese government also recommended a compensation scheme for local communities and participation of NGOs in conservation activities.

WWF: Study on the Potential Tiger Habitat in the Changbaishan Area, China

28. In 2007, World Wide Fund for Nature (WWF) proposed a bold plan to double the number of wild tigers by 2020, focusing on 13 landscapes identified as suitable areas for the expansion of world's tiger populations. WWF published the "Study on the Potential Tiger Habitat in the Changbaishan Area, China", suggesting a tiger conservation priority area in the Hunchun-Wangqing. Proposed policy measures include protecting habitat in tiger protected areas, recovering prey populations, improving forest management, and promoting policy supports by stakeholders.

WCS: A survey of Far Eastern Leopard and Amur Tiger Population in Southwest Primorski Krai, Russian Far East (February 2003)

29. After conducting a full-range survey for the population of Amur leopards and Amur tigers in southwestern Primorski Krai, WCS proposed specific protected areas for Amur Leopard and Amur Tiger conservation in 2003. This survey indicated that the most important parameters necessary for conservation of large carnivores are high prey densities, low road densities and little human access. These parameters concur with recommendations to ban logging, prohibit construction of forest roads, and alleviate human activities in protected areas. The program on the reintroduction of the Amur leopard into southern Sikhote-Alin highlighted the need for preventing forest fires, raising public awareness of biodiversity conservation, undertaking captive breeding of the Amur leopard, and improving international cooperation.

4.2 Major methods to promoting nature conservation in the Tumen River area

30. Those major proposals suggested nine similar methods to the protection of Amur tigers and leopards in transboundary areas, which could be categorized by four major action areas, i.e. expanding protected areas beyond national borders, maintaining the species population, engaging local community and the public in protection work, and improving technical capacity of conservation work.

Action area 1: Expanding protected areas beyond national borders

31. Ecological corridors: Establishing ecological corridors is considered as a critical method for conservation of wildlife animals. It is believed that ecological corridors would facilitate the protection of animals with large habitat needs by ensuring the ability of these animals to migrate and reproduce. Particularly, the habitat fragmentation of the Amur Tiger population reinforces the necessity for the establishment of ecological corridors. Major proposals argued that besides transboundary protected areas, ecological corridors are also needed for protection of tigers and leopards, because they could ensure a long-term recolonization of tiger and leopard populations

in the Tumen River basin. Ecological corridors would provide a gateway through which an exchange of individuals and genetic material would be possible. Ecological corridors also will act not only as a travel corridor for tigers and leopards, but as an ecological linkage for all components of the mountainous ecosystems of this tri-country region. Therefore, recovery of Tumen tiger and leopard populations are largely influenced by the connectivity of subpopulation in the tripartite region surrounding the Tumen River by ecological corridors.

32. Transboundary protected areas: The establishment of transboundary protected areas plays an essential role in the wildlife protection in the tri-country border region. The territorial nature and the high dispersion capability of tigers and leopards require a huge area of land to ensure their population persistence. The large habitat requirements for the animals' survival necessitate transboundary protection mechanisms as an essential method for neighboring regions to protect and manage globally- important and sensitive ecology.

33. The relevant initiatives and experience in existing mechanisms for transboundary conservations at national and international levels reflect that there is a general consensus that transboundary resource management has been an effective tool for promoting sound management of species, biodiversity and ecosystems. Establishment of a transboundary protected area in the tri-country border region will be a must for the development of a transboundary cooperation mechanism in the Tumen River area. In this regard, the Strategy for Conservation of the Amur Tiger adopted by the Ministry of Natural Resources and Environment of the Russian Federation confirms that it is necessary "to establish a Russia-China transboundary protected area that would on the Russian side incorporate "the Leopard Land National Park ... and on the Chinese side the Hunchun protected area". The "China National Biodiversity Conservation Strategy and Action Plan (NBSAP) 2011-2030" also specified that the conservation priorities in those areas will focus on the establishment of biodiversity corridors between cross-boarder nature reserves to protect big catamounts such as the Amur tiger and Amur leopard.

Action area 2: Maintaining population of prey

34. Prey density: Tigers and leopards need sufficient prey to settle down and breed young, and their home range adjusts to prey biomass. The major prey species of tigers and leopards have been facing population decline, as a result of reduction in suitable habitats and over-hunting. The size of the suitable habitat for the prey species has decreased due to continuous, long-term logging activities. For example, of the key prey species for tigers, wild boar relies heavily on the Korean pine nuts for winter forage. The loss of the Korean pine forests resulted in making the habitat unsuitable for supporting the wild boar. Over-hunting of ungulates driven by the great interest in Chinese traditional medicine market has also rendered tigers and leopards short of food. For instance, 250-300 ungulates are the absolute minimum allowable to ensure normal living conditions for an adult Amur Tiger. The large-scale hunting of red deer and roe for their

antlers, penis and placenta forced tigers to abandon their preferred habitat to obtain prey in other places.

35. Anti-poaching: Poaching damages the tiger and leopard population in two ways. First, poaching reduces the population numbers. When the decline reaches a certain level, self-recovery for the population becomes difficult. Second, poaching destroys the balance of population structure. Targeting large adult leopards and tigers for fur and bones breaks the age structure of their population. The distortion of the population structure could sharply reduce the possibility of reproduction.

36. The following results of anti-poaching activities of the Hunting Control Agency of Primorskiy Kray during the first six months of 2012 show the scale of poaching activities.

- 1417 administrative violation protocols completed
- 198 units of firearms seized
- 140 illegal killings of ungulates detected
- 28 criminal cases initiated
- 5 terminated with court rulings against poachers
- 22 smuggling activities, 11 cases involving CITES objects, 6 cases involving Russia's Red Book objects
- Seized animal parts: bear paws -81 units, tiger paws – 3 units, musk-dear parts -17 units
- 3 Chinese citizens were sent to jail to a total period of 8.5 years for attempt to illegally move 3 tiger skins and 2 bone sets of tiger across the border

37. Improvement of forestry management: Amur tigers are commonly found in Korean pine-mixed deciduous forests while Amur leopards prefer fir-spruce-pine-broadleaved and broadleaved forests on low mountain slopes. As a result, forestry management has major impacts on the habitat conservation for tigers and leopards. Habitat loss shrinks the landscape for tigers and leopards to live in and that of their prey hampering the reintroduction of tigers and leopards.

38. Declines in habitats for tigers and leopards are attributable to unsustainable logging harvesting, road construction, and forest fires. To improve the tiger/leopard friendly forestry management, one measure is to shift the type of harvest from natural forestry to forestry plantation. In addition, forbidding road construction in mountain natural forest will ensure suitable habitat for tigers and leopards. Studies argued that roads not only allow greater access for poachers to tigers, leopards and their preys, but also increase animal mortality rate from vehicle collision. It is also claimed that roads increase the probability of accidental encounters between animal and people, leading to tigers or leopards being shot out of fear or opportunity. For example, the road linking Hunchun to DPRK port is the primary threat that may act as a barrier to dispersal of tigers in the area. Many stakeholders have proposed to eliminate the

barrier and create an ecological corridor in the area to facilitate the population exchange and reproduction.

39. The use of fire to increase the land productivity by farmers also puts pressure on forestry management in protected areas. Fire will cause the forest to retreat, reducing the area of quality tiger/leopard habitat. Tigers and leopards will avoid areas that have burned, as they provide neither adequate cover for hunting, nor the habitat needed for prey. With repeated fires over time, the mature trees begin to die out and the forest slowly is being converted to grassland. Once meadows and scrublands are created, fires become even more frequent and intensive and this ensures that recovery of a forest stand becomes extremely unlikely. As a result, deliberate and accidental fires become a huge threat for habitats of tigers and leopards in the region.

Action area 3: Engaging local community and the public in protection work

40. Public education: In order to raise the public awareness of wildlife conservation and anti-poaching, there is a great need for public education activities on the significance of protecting wildlife, description of animals protected by the law, information on the punishments for breaking the law and case studies of previous poaching activities. The targeted audiences should be professionals of traditional Chinese medicine, students in elementary school and middle school, and potential fur buyers. Public education could influence professionals of traditional Chinese medicine to change their attitudes and practices so as to reduce the use of tiger ingredients and find alternatives to the medicines. Compared with adults, it is probably easier to enhance the consciousness of wildlife conservation for students in elementary schools and middle schools. Thus, school students should also be the targeted audiences in the public education activities.

41. Compensation scheme: Due to reduction in prey, tigers and leopards are compelled to turn to domestic and semi-domestic animals as their food for survival. The compensation scheme could decrease the conflicts between human and tigers/leopards, before sufficient prey can be reintroduced in the regions. Moreover, the depredation compensation program could be the most readily and quick way to avoid unnecessary backlash from the local populace.

42. Tiger-friendly community development: Community development programs could create alternative ways for local people to make income, rather than relying on activities that may harm the protection of tigers and leopards. Sales of forestry products, like timber, acorn, and deer body parts, are main income sources for many local people in this area. For example, deer farming, one important income source for people in Primorskii Krai, restricts the access to prey species for tigers and leopards. Dear farming confines several hundred deer within large fenced territories in order to harvest their antlers for medicinal purposes each year. The community development programs could help local people develop other careers instead of deer farming. By doing so,

those deer can be used to feed tigers and leopards so as to offer them adequate food to breed and raise young.

Action area 4: Improving technical capacity of conservation work.

43. Monitoring: Monitoring plays essential roles in obtaining precise data for surveys and scientific studies, as well as strengthening anti-poaching activities. However, the rarity, sparse distribution and secretive nature of tigers and leopards make the monitoring work dramatically difficult, unreliable and expensive. Since the primary productivity and prey densities are low in Russia and northeastern China, subsequently the home range sizes of tigers and leopards are even greater than the average. To solve these difficulties, strong patrol teams, well-developed monitoring technologies and efficient monitoring management are required. Russian protected areas in the Tumen River area have been benefited from advanced monitoring techniques including, a GIS (Geographic Information System) database, SMART (Spatial Monitoring and Reporting Tool) which before was called Management Information System (MIST). SMART allows the comparison of effectiveness between teams, conservation sites and time periods based on the standardized indicators, as well as the ability to show location and frequency of event occurrence on the map. Hunchun Nature Reserve is the first protected area in China that utilizes SMART for monitoring. As of March 2012, Hunchun Nature Reserve has completed patrolling for 971 days and 10,627 km, collecting a large number of information on illegal human activities and wildlife.

44. Capacity building: It is evident that developing coaching programs for the field work and technical training should be an important and indispensable component of a recovery plan for tiger and leopard populations. It could facilitate experience sharing between experts and improve the monitoring system, anti-poaching activities and international cooperation. The Chinese have started to support the development of coaching programs to gain experience from the experienced Russian experts and receive help from professional organizations. In the winter of 2011, in collaboration with WWF China, forest authorities in China launched technical training course on Amur tiger and leopard monitoring for rangers. In addition, a new set of guidelines designed for managers to use in tiger protected areas was also introduced during the training.⁷

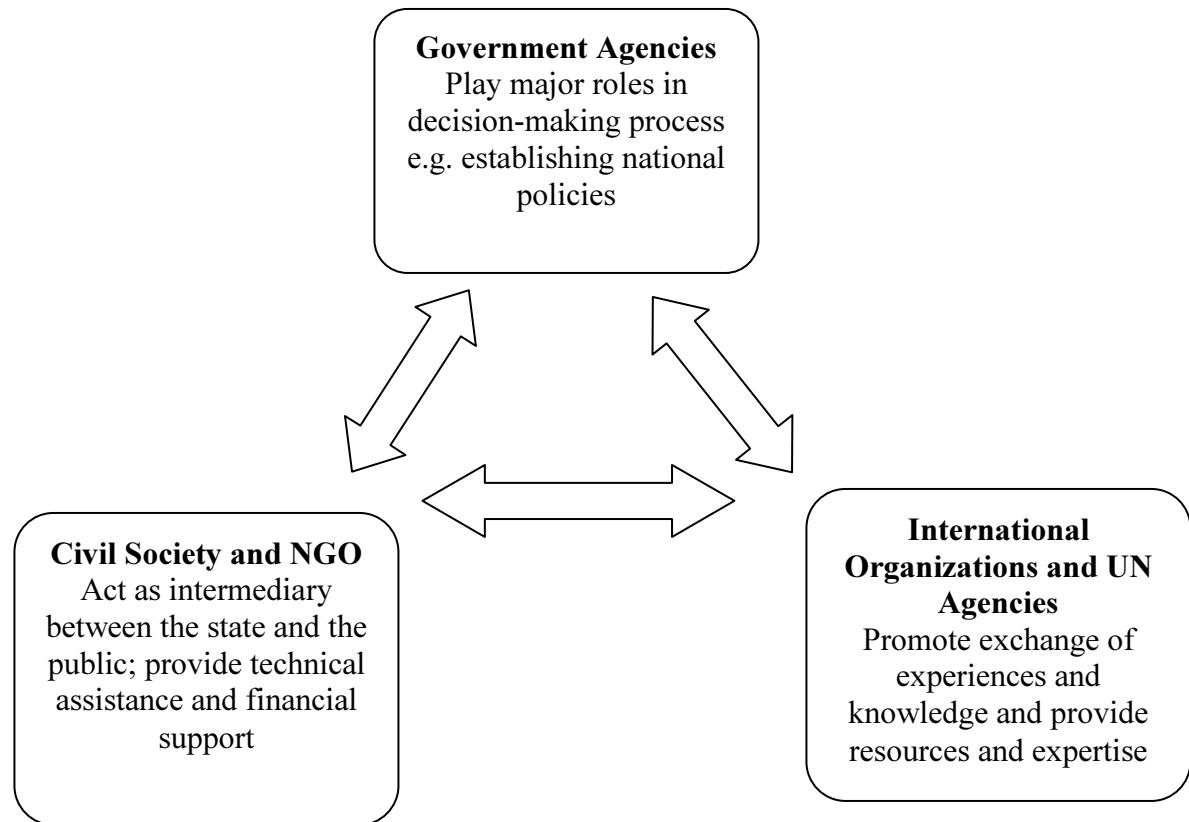
5. NEASPEC Partnership for Tiger and Leopard Conservation

45. In order to carry out priority actions required and proposed by key stakeholders including national governments, NGOs and international organizations, there is a great need for building a mechanism that brings all stakeholders together for effective communication,

⁷ WWF Tiger Alive Initiative Annual Report 2012

collaboration and coordination. Each stakeholder has played crucial roles in promoting nature conservation in the Tumen River area. Government agencies have laid groundwork and set up the general rules for protection work in the Tumen River area by initiating protected areas while international NGOs and UN organizations brought experience and expertise to the place. Although they all have the same ultimate goal to protect biodiversity, different stakeholders have different approaches and activities based on their distinctive mandate and expertise. However, there is always a great need for communication, collaboration and coordination among stakeholders for efficient use of limited human and financial resources, and effective responses to the existing challenges. Thus, it is necessary to develop a partnership for all stakeholders to identify interests, seek synergies, and harmonize efforts from each other.

<Figure 4> Roles of Major Stakeholders

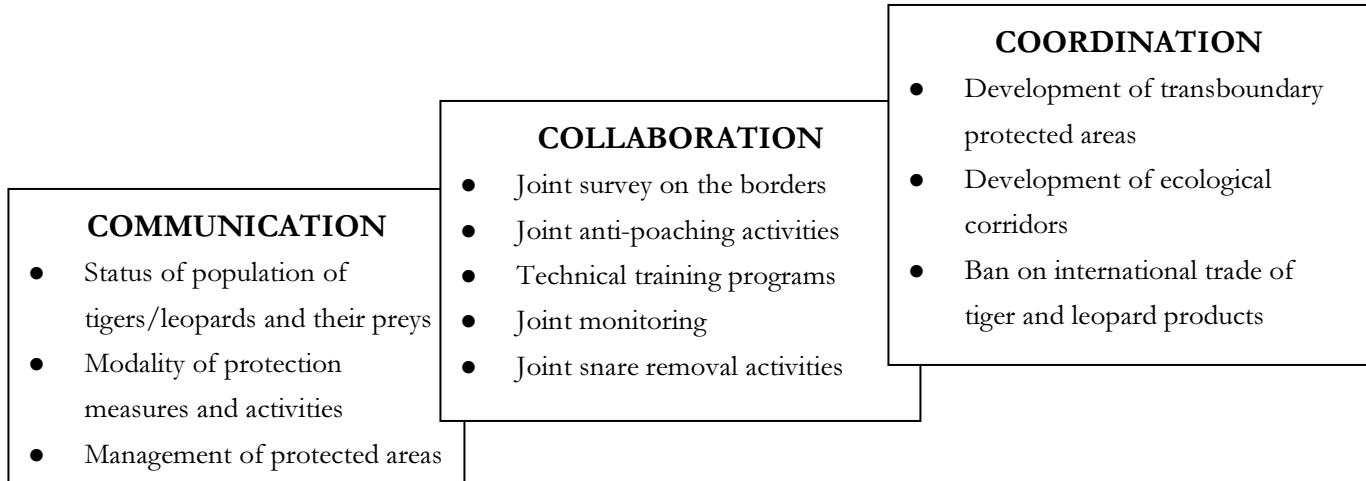


Major roles of the Partnership: Strengthening communication, collaboration and coordination

46. While both Chinese and Russian sides of protected areas have been strengthening domestic measures for protecting tiger and leopard in the Tumen River area, transboundary cooperation is still far behind the required level. During the last decade, NGOs have played a pivotal role in facilitating transboundary cooperation, and provincial governments of China and the Russian Federation have started to build a formal arrangement. Considering the significance

of transboundary cooperation, such initiatives should be substantially strengthened by having a strategic plan that supports stakeholders, in particular, authorities of protected areas to advance the level of cooperation, from communication to collaboration and to coordination.

<Figure 5> Levels of Transboundary Cooperation for Nature Conservation



47. **Communication:** The initial level of transboundary cooperation information exchange and knowledge sharing across borders. In particular, communication at the very low level is associated with sharing information on the status of tiger and leopard population and their prey population. It also involves sharing good measures and practices of species conservation among technicians; exchanging experiences of managing protected areas among policy makers. In addition, communication also helps a range of stakeholders develop a better understanding of the issues and challenges involved in achieving conservation goals and objectives at a variety of scales, which in turn will encourage stakeholders from a variety of backgrounds and perspectives to contribute to the identification and framing of collaboration goals and objectives.

48. **Collaboration:** Transboundary nature conservation requires different stakeholders to joint work including joint survey and monitoring on the border, joint anti-poaching activities, capacity training program, sustainable forest management, etc. Collaboration is a co-action extending beyond communication even though it is a key element of the act. Collaboration involves not only exchanging viewpoints but also searching for solutions. A collaboration process goes farther than communication to address joint decision making at the field level. Collaboration relies on constructive engagement to achieve a long-term goal. Although a certain amount of joint conservation activities have already been done over the past few decades, especially between Russian and Chinese entities in the Tumen River area, there is no constructive mechanism to maintain a sustainable partnership with key stakeholders. Transboundary nature conservation in the Tumen River area needs long-term and collective effort. Hence, a collaboration framework becomes very necessary to change ad hoc collaboration to a regular and formal one.

49. **Coordination:** Transboundary cooperation needs to go beyond communication and collaboration. It is necessary for stakeholders to align each other's policies responding to complex conservation issues that isolated effort cannot solve. Coordination is more associated with policy synergies between national policy makers, such as states and local governments. Coordination is a higher level pattern of interaction within the partnership since it needs complex decision making process and long-term commitments. For instance, development of ecological corridor and transboundary protected area provide great examples of stakeholder coordination. The coordination involves a broad participation of both domestic and foreign governmental agencies at different levels, ranging from central and provincial governments to local reserves. It requires different stakeholders to identify the common objectives, adopt similar approach and align policies both horizontally and vertically. In addition, it also requires time and financial devotion from participants. The process of stakeholder coordination includes intensive consultation before the event and follow-up activities afterwards. For coordination at the national, regional and international level, stakeholders may want to develop intergovernmental agreements to harmonizing their policies and management more effectively.

Stakeholder Representation

50. It is important to have a wide range of representation to ensure the legitimacy and accountability of the partnership. As the table 3 shows, there are very diverse stakeholders within and outside the government. In the case of the Chinese government, key stakeholders include State Forestry Administration, Jilin Provincial Forestry Department; Jilin Provincial Forest Industry Bureau, Hunchun City and Hunchun Nature Reserve. However, non-government stakeholders including international NGOs (such as WWF and WCS) have also played a key role in strengthening conservation policies and techniques in protected areas by providing technical and financial resources. Those key stakeholders have built a complicate web of communication and collaboration amongst them, but it is important to have an open and common mechanism that brings all stakeholders together and facilitates joint action. In particular, stakeholders' cooperation beyond national border requires a formal mechanism in order to make cooperation regular and sustainable.

<Table 3> Overview of Key Stakeholders in China

Stakeholders	Functions and Main responsibilities
Provincial forestry department;	<ul style="list-style-type: none"> • Local policies and legislative support • Mobilizing financial resources
Provincial forest industry Bureau	<ul style="list-style-type: none"> • Project coordination, implementation and monitoring evaluation • Development of local conservation objectives, strategies and action plans • Coordination support and participation of relevant departments of

	<p>government;</p> <ul style="list-style-type: none"> • Organize part of the implementation of project activities; • Establish, expand and construct new protected areas
State forestry Administration	<ul style="list-style-type: none"> • Legislative and policy support • Promotion of national conservation strategies • Striving for national investment channels • Coordination among inter-provincial and international organization • Provide support for national protection policy • Guide projects
Forestry Bureau at the basic level	<ul style="list-style-type: none"> • Develop management plans • Implementation of project activities • Patrol, investigation and monitoring • Develop pilot demonstration <ul style="list-style-type: none"> • Public education and Publicity promotion
Protected areas	<ul style="list-style-type: none"> • Capacity-building • Biodiversity monitoring • Develop management plans • Implementation of project activities <ul style="list-style-type: none"> • Develop pilot demonstration promotion
Local government	<ul style="list-style-type: none"> • Coordinate relevant projects involved in • Maintain understanding about project progress • Rational planning of land use
Environmental protection agency; Road transport bureau; Water resources Bureau; Border protection	<ul style="list-style-type: none"> • Ecological corridors and border management • Provide environment friendly demonstration of construction projects • Promote construction project management guide
Local communities	<ul style="list-style-type: none"> • Development of alternative livelihoods industry • Participation in project implementation • Adjust livestock cultivating methods
Universities, Research organizations	<p>Technical support and implementation</p> <ul style="list-style-type: none"> • Background investigations • Special research, survey and monitoring • Technology demonstration • Provide information of biodiversity conservation • Provision of technical human resources • Technical Training

Forestry planning, design and exploration institute	<ul style="list-style-type: none"> • GIS map production • Provision of forest-related information • GIS Training
International NGOs (WWF, WCS) UN and International Organizations	<ul style="list-style-type: none"> • Participate in policy advocacy • Share information and experience • Technical and financial support • Pilot demonstration • Independent evaluation of projects • Provide guidance for field work
Local NGOs Volunteers Local residents	<ul style="list-style-type: none"> • Implementation of local community projects • Pilot development • Participate in problem analysis and develop appropriate objectives • Provision of human resources • Public advocacy

Proposed Structure of the Partnership

51. While the importance of transboundary cooperation for protecting tigers and leopards is widely recognized amongst key stakeholders, existing activities across national borders are not supported by any coordination body or formal agreement between governments. China and the Russian Federation have the Sub-Committee of Transboundary Nature Conservation and Biodiversity Protection, and Jilin Province and Primorsky Province made a cooperation agreement in 2010. However, both the sub-committee and the provincial agreement do not provide partnership platforms for all stakeholders and concrete plans for strengthening all elements of transboundary cooperation, i.e. communication, collaboration and coordination across national borders. Moreover, existing transboundary cooperation does not involve another important country, DPRK, as well as other potential partners outside Tumen River area.

52. Thus, it is necessary to launch a new partnership that involves all major stakeholders, and facilitates 3Cs – communication, collaboration and coordination. In this regard, the partnership could be built on the most recent progress made between China and Russian Federation at the provincial level. The Russian Working Group on Amur Tiger and Leopard and the Feline Research Center of China State Forestry Administration agreed during the International Ecological Forum “Nature without Borders” held on 19- 20 July 2012 in Vladivostok to establish a Sino-Russian Expert Group that could ensure the exchange of information, develop a transboundary protected area network, launch comprehensive cooperation, etc. It was also agreed that the Network would work on (a) information and experience exchange by dispatching experts/staff of protected areas to each other, (b) monitoring tiger and leopard with unified

methodology and joint study, (c) ecological protection in border areas with a focus on anti-poaching, snare removal and transboundary protected areas, and (d) environmental education and public awareness.

53. Considering the solid capacity and expertise, the Sino-Russian Expert Group could be harnessed as the backbone of the NEASPEC partnership while the members of the partnership should be further expanded. With this arrangement, NEASPEC could further strengthen the institutional, political and technical foundations of the Expert Group, thereby making tangible contributions to elevating the level of transboundary cooperation for tiger and leopard.

54. Furthermore, the partnership could be linked with a new cooperation mechanism for leopard, which was launched during the Far Eastern Leopard International Conservation Meeting held on 31 July 2 August 2012 in Slavyanka. The mechanism consists of two working groups: working group on leopard survey and working group on camera trapping. The mechanism consisting of experts from government agencies, protected areas and NGOs will be coordinated by the Head of Primorsky Okhotnazor, the Director of Land of the Leopard National Park, and the Head of Jilin Wildlife Department.

55. Therefore, launching the NEASPEC Partnership is proposed as follows

- **Key Activities:** Partnership's major goals and roles would be the facilitation of (1) communication for information exchange and knowledge sharing across borders, (2) collaboration among stakeholders for joint work including joint survey and monitoring on the border, joint anti-poaching activities, capacity training program, sustainable forest management, etc, and (3) coordination of domestic measures and activities related to transboundary cooperation such as the establishment of ecological corridors and transboundary protected areas.
- **Membership:** The Partnership may consist of government agencies, academic institutions, NGOs from China and the Russian Federation as well as relevant stakeholder groups from other NEASPEC member States and international organizations.
- **Coordination committee and working groups:** As the main organ for the partnership, the coordination committee may comprise of representatives from major stakeholder groups. The committee oversees and supports the plans and activities of working groups to be established for carrying out activities in the action areas.
- **Activity/Information center(s):** The operation of the partnership requires activity/information center(s) in order to plan and organize activities and facilitate

communication among participating stakeholders. The Activity/Information Centers, which will be operated under the overall guidance of NEASPEC, could be housed in a government institute or any other body that are fully involved in transboundary cooperation. In addition, activity/information center(s) could work on collection and analysis of information, facilitation of knowledge-sharing, and implementation of joint activities. In this connection, the Feline Research Center of SFA, China, and Russian Far East Federal District Department of Environmental Control in the capacity of the coordinator of the Russian Working Group on Amur Tiger and Leopard could act as the activity/information center(s) with technical support from NEASPEC Secretariat.

- **Financial and human resources:** The establishment and the operation of the partnership would not be required any massive scale of additional funding. A key purpose of the partnership is to help streamline and strengthen ongoing communication and collaboration among stakeholders, thereby making more effective responses to required actions for protecting tigers and leopards. The next step of the partnership could be the formulation of options for coordination of conservation policies and measures across national borders. Nevertheless, the major parts of communication, collaboration and coordination would be undertaken domestically, which means financial and human resources are mostly devoted to domestic action. However, key stakeholders, in particular, the government, need to allocate additional financial and human resources for operating the coordination committee and working groups, and undertaking joint activities. Nevertheless, it is necessary for NEASPEC to co-finance the costs of operating activity center(s) in order to materialize the plan. The required funding from NEASPEC for co-financing is estimated about \$50,000-\$60,000 per year, which could be mainly used for hiring one full-time staff for each activity center, operating an information platform on tiger and leopard, and supporting communication.

56. The process of launching the NEASPEC Partnership is proposed as follows.

- Expert review: This proposal was reviewed by the concluding meeting of NEASPEC project on transboundary nature conservation held on 21-23 July 2012 in Vladivostok.
- Review by the 17th Senior Officials Meeting (SOM): The 17th SOM reviews the proposal and makes a decision.
- Launching an intergovernmental/multi-stakeholder process: Should the SOM decide to establish the partnership, the Secretariat will facilitate an intergovernmental/multi-stakeholder process from late 2012 or early 2013.

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