Bikin Tiger Carbon Project

Permanent protection of otherwise logged Bikin Forest in Primorye, Russia

Bikin River valley view in the middle reaches, Photo by A. Source: Bikin River Valley – Proposal for the Inscription on the UNESCO Cultural and Natural World Heritage List

CCB Documentation
accompanying the Joint Implementation Project Design Document
Version 1.3, 9th January 2013

Following the Climate, Community and Biodiversity Project Design Standards, 2nd Edition (December 2008)

Developed with technical support of
GFA ENVEST GmbH
PROJECT OVERVIEW

Background

The proposed project is being implemented by KfW Bankengruppe, WWF Germany and WWF Russia, Amur Branch with financial support of the German Ministry for Environment (BMU). The project is financed under BMU’s International Climate Initiative (ICI) with the specific project title ‘Protecting large scale virgin forests in the Bikin area of the Russian Far East to mitigate climate change impacts’. KfW manages the financial cooperation between parties involved whereas WWF Germany and WWF Russia, Amur Branch actually engage in the project implementation in close cooperation with the Tribal Commune Tiger (TCT, a cooperation of the Udege, a local indigenous tribe living in the project area).

The local population comprises mainly indigenous people of the Udege tribe living in the local villages Jasenevo, Sobolini, Olon and the Municipality of Krasny Yar (the local administrative center for all the mentioned villages).

The proposed project is based on a long lasting cooperation between WWF Russia, Amur Branch and the Tribal Commune Tiger. TCT will be the project owner and is listed as Project Participant in the Joint Implementation (JI) Project Design Document (PDD). The carbon revenues will allow TCT to cover various project related costs, but it will also enable TCT to conduct various investments in social development activities (improvement of teaching quality, internet access and modernization of electricity supply). This will not only improve the livelihood of the local population, it will also increase its attractiveness to younger people who currently tend to move to larger towns or cities. As such the project shall create new perspectives for the local communities in the long run.

Project Summary

Project Context. Wood and forest products are the fifth largest source of Russian export earnings. Legal large scale logging operations lead to a decrease of biomass (and carbon) stored in the project area. However many operations within the forest sector are seen as illegal by international NGO’s. Greenpeace Russia estimates illegal timber harvesting in Russia to be at least 20 percent (2001), while WWF’s data show that it exceeds 30 percent, reaching 50 percent in some areas. Through legal and illegal logging large forest areas are destroyed and GHG are released.

The Russian Far East represents an important forest area. Based on an inventory executed by WWF on High Conservation Value Forests (HCVF) in the Russian Far East (RFE) only 15% of the most valuable forests for biodiversity and climate protection are under legal protection. Of the unprotected areas about 26% are designated as nut harvesting zones (NHZ). Therefore protecting these areas can considerably assist in securing valuable forest areas in the RFE.

The project area is part of the the Bikin NHZ and the related riparian zone (in total 461,154 ha) amounts to 450,374 ha. It is located in the middle portion of the Bikin river area, in the Pozharskii District of the Primorskii Krai, Russian Far East. The Bikin area is one of the last intact, large scale watersheds not only in the Russian Far East but also in the Northern Hemisphere. Especially the middle and upper reaches of the Bikin River are dominated by mature and virgin temperate coniferous broadleaved forests, which have a particularly high concentration of rare and relict plants. This is the only large scale forest left of the once widespread Ussuri taiga. The nomination as a candidate to become a World Heritage Site for natural values reflects the global importance of the area. The total project area is estimated to contain 31.04 million tC or approx. 113.82 million tCO2 in its Above Ground Biomass (AGB).

Furthermore, the area is important for its biodiversity value (e.g., its Korean pine-broadleaved forests is the prime habitat for the endangered Amur tiger) and for sustaining the traditional lifestyle of indigenous people.
As part of the project activities, the TCT has leased the project area from the Primorye Forest Department. This not only grants TCT the right to collect NTFPs (mainly Korean Pine Nuts, mushrooms and berries) but also stipulates the rights to manage forest operations at the project site. So-called “selective logging” in connection with road building, which very often leads to large scale logging operations, results in the destruction of the carbon storage, the loss of biodiversity and reduced income opportunities for the indigenous communities. It is envisaged that having the rights for logging in the project area will allow the project partners to protect the project area from both, legal selective logging (at a comparably large scale) and illegal logging.

**Overall Goal.** The project has the overall goal to mitigate climate change due to securing the last virgin forests in RFE Bikin River valley as natural carbon stores. This shall be achieved by protecting the Bikin NHZ from large scale logging operations and by sustaining the traditional life of the local communities.

**Project Activities.** In order to achieve the above mentioned goal, the project will implement the subsequent project activities:

- **Leasing the Project Area.** The land concession was leased by the Tribal Commune Tiger.
- **Protection of the Project Area.** WWF develops a management plan for the project area and implements various protection activities to avoid illegal logging, poaching and forest fires.
- **Efficient Project Management.** In order to ensure the efficient project management, WWF established local project management capacities, developed a management structure between WWF and its partners and implements the specific management activities.
- **Development of a Carbon Finance Concept.** WWF developed and implements a carbon finance concept to ensure the long term financing of the project activities, most of all the lease and protection of the Bikin NHZ.
- **Development of a Long Term Financing Concept.** WWF develops a long term financing concept for ensuring the conservation of the project area. This includes various NTFP revenue sources complementing the envisaged carbon revenues and will be based on a project specific financing structure managing carbon- and NRFP revenues.

**Methodology**

The CCB documentation complements the JI PDD. This document provides a general project description including its setup, as well as a detailed discussion of the project’s climate impacts. The quantification of the climate impacts strictly follows the JI Supervisory Committee (JISC) Guidance on criteria for baseline setting and monitoring (Version 02). Reference is made to the baseline & monitoring methodology “Estimating GHG Emission Reductions from Planned Degradation (Improved Forest Management)” developed under the Verified Carbon Standard (VCS).

In order to avoid the redundancy of the information provided, the Climate, Community and Biodiversity (CCB) Documentation refers to the related sections in the JI PDD, wherever applicable. Please note, the environmental and social sections of the CCB documentation strongly build on the ‘Bikin River Valley - Proposal for Inscription on the UNESCO Cultural and Natural World Heritage List’. This document was developed by the Natural Heritage Protection Fund et al. with support of WWF Russia, Amur Branch.

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1 Accessed at 27th October 2011 from [http://www.v-c-s.org/methodologies/VM0011](http://www.v-c-s.org/methodologies/VM0011)
Mission Statement

The project area features a unique ecosystem hosting at least 8 endangered and at least 14 endemic species (for more details see chapter G.1.8.1). It has a high share of Korean Pine broadleaf forest sites with a complex tree composition and structure. These forest stands are key habitats to the Amur Tiger and its major prey species. The project area is home to the Udege people, a local indigenous tribe. The World Wildlife Fund and its partners hope that the development of the carbon project allows for the conservation of the project area and related activities.

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### Abbreviations and Acronyms

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Form</th>
</tr>
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<tbody>
<tr>
<td>AAC</td>
<td>Annual Allowable Cut</td>
</tr>
<tr>
<td>AFOLU</td>
<td>Agriculture, Forestry and Other Land Use</td>
</tr>
<tr>
<td>AGB</td>
<td>Above Ground Biomass</td>
</tr>
<tr>
<td>A/R</td>
<td>CDM Afforestation / Reforestation</td>
</tr>
<tr>
<td>CCBA</td>
<td>Climate, Community and Biodiversity Alliance</td>
</tr>
<tr>
<td>CCBS</td>
<td>Climate, Community and Biodiversity Standard</td>
</tr>
<tr>
<td>CR</td>
<td>Critically threatened following IUCN classification</td>
</tr>
<tr>
<td>DOE</td>
<td>Designated Operational Entity</td>
</tr>
<tr>
<td>EN</td>
<td>Endangered following IUCN classification</td>
</tr>
<tr>
<td>FFRI</td>
<td>Far Eastern Forest Research Institute</td>
</tr>
<tr>
<td>GHG</td>
<td>Greenhouse Gas</td>
</tr>
<tr>
<td>GPS</td>
<td>Global Positioning System</td>
</tr>
<tr>
<td>HCVF</td>
<td>High Conservation Value Forests</td>
</tr>
<tr>
<td>HCV</td>
<td>High Conservation Values</td>
</tr>
<tr>
<td>ICI</td>
<td>International Climate Initiative</td>
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<tr>
<td>IUCN</td>
<td>International Union for Conservation of Nature</td>
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<td>JI</td>
<td>Joint Implementation</td>
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<tr>
<td>JISC</td>
<td>JI Supervisory Committee</td>
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<tr>
<td>KPN</td>
<td>Korean Pine Nuts</td>
</tr>
<tr>
<td>LC</td>
<td>Least Concern following IUCN classification</td>
</tr>
<tr>
<td>LoA</td>
<td>Letter of Approval</td>
</tr>
<tr>
<td>LULUCF</td>
<td>Land Use, Land Use Change and Forestry</td>
</tr>
<tr>
<td>NHZ</td>
<td>Nut Harvesting Zone</td>
</tr>
<tr>
<td>NT</td>
<td>Near Threatened following IUCN Classification</td>
</tr>
<tr>
<td>NTFP</td>
<td>Non Timber Forest Product</td>
</tr>
<tr>
<td>PDD</td>
<td>Project Design Document</td>
</tr>
<tr>
<td>PDD</td>
<td>Project Design Document</td>
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<tr>
<td>QAQC</td>
<td>Quality Assurance/Quality Control</td>
</tr>
<tr>
<td>SOP</td>
<td>Standard Operating Procedures</td>
</tr>
<tr>
<td>TCT</td>
<td>Tribal Commune Tiger</td>
</tr>
<tr>
<td>TTNU</td>
<td>Territory of Traditional Nature Use</td>
</tr>
<tr>
<td>USD</td>
<td>US Dollar</td>
</tr>
<tr>
<td>VCS</td>
<td>Verified Carbon Standard</td>
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<td>WWF</td>
<td>World Wildlife Fund</td>
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</table>
G1. Original Conditions of the Project Area

G1.1 The location of the project and basic physical parameters (e.g., soil, geology, climate)

**Location.** The project is located in the Primorsky Krai in the Russian Far East, bordering China and North Korea. The project area itself is located in the middle portion of the Bikin river in the Pozharskii District of the Primorsky Krai. The Bikin area is one of the last intact, large scale watersheds not only in the Russian Far East but also in the Northern Hemisphere. Especially the middle and upper reaches of the Bikin River are dominated by mature and virgin temperate coniferous broadleaved forests, which have a particularly high concentration of rare and relict plants. This is the only large scale forest left of the once widespread Ussury taiga. The nomination as a candidate to become a World Heritage Site for natural values reflects the global importance of the project area.

The project area encompasses all forest stands of the Bikin Nut Harvesting Zone concession and the surrounding riparian zone. These areas sum up to 461,154 ha (please refer to the JI PDD Section A.4.1.4 for more details including a map showing forest units and the individual compartments within the forest units). The forest definition of the Russian Federation was applied. Using this definition, the project comprises a total area of 450,374 ha. The difference was excluded, as it must not be defined as forest (please refer to the JI PDD, Section A.4.2 for a detailed assessment).

**Figure 1: Location of Primorky Krai in the Russian Far East**
Figure 2: Location of the project area in Primorsky Krai
General Characteristic of the River Basin. The Bikin River is one of the main right-bank tributaries of the Ussury River, which eventually drains into the Amur River. In comparison with other regions of Russia, the area has a unique landscape and bio-geographical characteristics, and a high density of rare and endangered species. Most importantly it contains the reproductive core of the northern subpopulation of the Amur tiger (Panthera tigris altaica), as well as another 51 species of mammals. Due to the undisturbed habitat, there is a high density of animals suitable for hunting, bulk nesting of a population of the scaly-sided merganser (Mergus squamatus), fish-owl (Ketupa blakistoni) and another 169 species of birds, 7 species of amphibians and 10 species of reptiles. Ichthyofauna is represented by 48 species. The most remote salmon spawning area of Ussury River basin is located in the Bikin River basin.

Data obtained during evaluation of game management reports as well as during field surveys of the Bikin river basin were published in the “Proposal for inscription on the UNESCO Cultural and Natural World Heritage List, Natural Heritage Protection Fund et al., 2010.

The last major primary forestland of mixed cedar-broadleaved forest, 5 sires of reference gene pool of typical woody species, and habitats of rare and endangered species of vascular plants are being conserved here.

Terrain. A substantial part of the Middle and Upper Bikin is occupied by the so-called Verkhnebikinskaya inter-montane depression. The remaining area is mostly defined by medium-high mountains, and part of the main watershed is occupied by the extensive table-land of Sikhote-Alin. Much of the Upper and Middle Bikin territory is occupied by medium-high mountains with elevations up to 1,600-1,700 m above sea level and mountain plateaus. Rocky cliffs up to 100-150 m are often found in river valleys, cutting through the basalt plateau, while valleys are in the shape of canyons. Low gradient slope relief is widespread on the right bank of the Bikin River. The topography is characterized by an absolute elevation of 600 m, and the relative excess of 100 m, rarely exceeding 200 m. Rivers meander often, form a set of flows and have well worked out, usually swampy, valleys. The main features of the relief were formed by volcanism, neotectonic movements and related erosion.
**Hydrography and Hydrological Conditions.** The relief is intensely divided by fairly large river valleys and their numerous tributaries. The density of the river network is 1.4 –1.8 km/km². The highest density of the river network occurs in the middle belt of the mountains (300-800 m above sea level). Below 300 m and in highlands near the watersheds the drainage density decreases. The channels of these watercourses have a large drop (0.05 – 0.19 m/m); there are frequent rock outcrops and rapids. The main features of the hydrography and the hydrological regime of the basin are the following:
- Intense dissection of the territory by the hydrological network;
- High water content in the streams during the warm season; large amplitude of daily runoff during the year, and a prevailing flood regime in summer. 95% of runoff occurs in the warm period. River breakup usually begins in mid-April. Discharge of melt water usually comes in two phases due to melt water first from the lower and then from the upper mountain reaches surrounding the Bikin valley. In the first half of the summer precipitation is low and the water level in rivers is substantially reduced. In the second half of the summer due to heavy rains the water level is subject to sharp fluctuations, repeated and rapid rise and a slow decline. The water temperature is gradually increased from spring to midsummer, reaching the maximum value of 17.2 °C at the end of July to early August (with fluctuations from year to year from 13.0 to 20.2 °C). The fall in water level arises in September and October. First slush on the rivers occurs in the beginning of November, freezing in late November. The duration of ice period is 112-157 days, average 138 days. The ice thickness reaches a maximum values (46-114 cm, average 76 cm) in the first half of March. Some streams and rivers freeze to the bottom. Ice fields may extend to tens or hundreds of meters along the channels of watercourses and various parts of the slopes. Minimum river flow is observed in late February – early March.
- The lowest natural regulation of stream flow in comparison with other parts of the region;
- High vertical gradients of the total runoff; the potential for surface runoff and increase of water turbidity.

*Figure 4: River bank on Bikin River*
Climate. The territory lies in two climatic zones:

1. Temperate climatic zone on the eastern edge of Eurasia (southern sub-region of monsoon forest region (Alisov, 1956).

The features of the impact of major climate-forming factors and processes (i.e. radiation and the circulation) determine the proper formation of continental climate with the characteristics of monsoon. Thus, the winter atmospheric regime is under the influence of the Asian anticyclone, on the general background of «dry» western continental winds and is characterized by cold winters. Summer is characterized by typical cyclonic activity, with domination of southern winds and entrance of moist air masses, with formation of situations of high clouds (Vitvitsky, 1969). Significant differentiation and climate transformation on individual locations are created by the influence of the relief (the difference in exposure, altitude, ridges barrier role) and vegetation (forested, type, crown density, etc.).

Regional and local climate conditions are characterized based on regular observations at 2 representative weather stations: Ulunga (Okhotnichy village; alt. 763 m) and Gantsanzha (Rodnikovaya village; alt. 246 m), located respectively in the upper (eastern) and middle (western) parts of the Bikin River valley. Also sample data from a westward (lowest part of the Bikin River valley) meteorological station Olon (Krasny Yar village; alt. 128 m) were used.

Sunshine Duration is based on observations conducted at Ulunga weather station. Minimum sunshine duration is observed in early winter (about 140 hours), and the longest in the first half of summer (207-210 hours in June-July). In some years, depending on the course and intensity of cloudiness, the number of sunshine hours could strongly fluctuate from the long-term average (from 30-40 hours in winter to 150 hours in summer). Hence, the annual total solar radiation usually ranges from 100 to 110 kcal/cm² (maximum in June – an average of 15 kcal/cm²). About 40% of this amount falls on the annual radiation balance (40-45 kcal/cm²), with its maximum intensity in June – up to 0.61 kcal/cm²/min.

Annual Cloud Cover is directly related to the seasonal change of atmospheric circulation.

- Cold and dry air masses which dominate in winter are causing clear weather with the majority of clouds in top and middle level, with almost complete absence of lower level clouds.
- In summer the change of air masses occurs in the opposite direction – from the south-east to the north-west (from the zone of the Pacific subtropical anticyclone to the Asian depression) at the same time with increasing moisture content, causing at this time the maximum values of the frequency of different states of the sky and clouds.

Temperature Regimes of the project area are characterized by high spatial and altitudinal contrasts. The latter (for example, between Okhotnichy village and Rodnikovaya village) can be traced by comparing, respectively, the major indicators of atmospherical temperature: the annual averages are -1.5 and -0.3°C, the monthly averages in January -22.6 and -23.2°C, and in July 16.3 and 19.0°C; minimum averages in January are -25.5 and -29.6°C, and in July 12.4 and 13.5°C; maximum average in January -18.4 and -15.3°C, and in July 22.1 and 26.2°C. At the same time, respectively – the absolute minimum -42 and -49°C (average per annum -33.9 and -40.3°C); absolute maximum is 34 and 36°C (average 30.3 and 32.9°C).

First freezing occurs in the third week of September, and the last – in the third week of May; the duration of the frost-free period is on average 117 days in the west and 126 days in the east. The first frost on the soil surface occurs in mid-September and the last at the beginning of June. The duration of the frost-free period is nowhere more than 104 days.

Precipitation. The moisture regime of the territory is characterized by a distinct seasonal fluctuation (a large amount of precipitation in summer, during warm and humid period – against a minimum of precipitation during the cold and drier winter). The features of the atmosphere precipita-
tions distribution are determined by the monsoon circulation (a clear change in the ruling moisture-laden ocean air and relatively dry continental flows) and by the complex of orographic conditions (the peculiar combination of river valleys and mountains which control the passing of air masses). The average annual precipitation varies greatly over the territory: from the 800-850 mm in the east to the 850-900 mm in the west (from April to September, respectively, from the 630-670 mm and to the 710-750 mm; from October to March from the 170-180 mm to the 140-150 mm). Snow cover has a strong governing effect on temperature and hydrologic balance of active surface, flora, soils and subsoils. Substantial snow cover usually sets up at the beginning of November (in less than 50% of the winters in mid-October) and keeps staying mostly until 15-20 of April. There are no winters without substantial snow cover within the territory.

Figure 5: Average Atmospheric Temperature, Precipitation and Wind Speed Distribution

Source: Data from Gantsanza meteorological station, Natural Heritage Protection Fund et al, 2010, Bikin River Valley – Proposal for Inscription on the UNESCO Cultural and Natural World Heritage List
The Bikin Nut Harvesting Zone features a forest cover of 99%. The main woody species are Korean pine (Pinus koraiensis) – 44%, Ajan spruce (Picea ajanensis) - 38%, yellow birch (Betula mandshurica) – 9%, larch (Larix Gmelini) – 4%, white birch (Betula alba L.) – 3%. The most popular are mixed shrubby cedar woodlands with yellow birch (Betula mandshurica) and cedar-fir forests with yellow birch (Betula mandshurica) and Amur linden (Tilia amurensis). Forests with cedar domination usually are less than 600 m above sea level. Fir-spruce forests occupy the upper parts of slopes, watersheds and upper parts of rivers and spring basins, with mid-level stand quality along Nut Harvesting Zones. Cedar woodland is more productive with mid-level stand quality. Spruce forests of the upper altitudinal mountain zone represent poor stands. Middle-aged forest stands dominate (43%) in Nut Harvesting Zones, which include cedar woodlands of III-V age class and other woodlands of II-VI age class. Ripening woodlands occupy 26%, mature 28%, old growth 1% of the area (Sokolova, 1994).

Riparian Zone. Wooded areas of this forest category occupy 93%. Forests with domination of spruce (Picea sp.) occupy 38%, cedar (Pinus sp.) 20%, larch (Larix sp.) 13%, elm (Ulmus sp.) and rhynofolious ash (Fraxinus rhynchophylla) 10%, chosenia (Chosenia arbutifolia) 7% of the total area. Valley spruce forests, cedar forests with ash and elm, larch-spruce forests are dominant (Sokolova, 1994).

Non Timber Forest Products. More than 40 species of plant being of medicated, nutritive, technical value find in areas forests. Estimate possible annual harvesting of medicinal herbs in this ecologically clean region could meet the demand in medicinal herbs of all the Primorsky Krai. Table 1 demonstrates the approximate value of annual harvesting of some useful plant species of Pozharsky District.

Table 1: Non Timber Forest Products in Bikin

<table>
<thead>
<tr>
<th>Resource</th>
<th>Commercial stock, t</th>
<th>Possible harvest, t</th>
<th>Economic value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clusterberry (Vaccinium vitis-idaea)</td>
<td>30-40</td>
<td>15-20</td>
<td>food, medical</td>
</tr>
<tr>
<td>Blueberry (Vaccinium uliginosum)</td>
<td>30-40</td>
<td>20-25</td>
<td>food</td>
</tr>
<tr>
<td>Cranberry (Oxycoccus)</td>
<td>3-4</td>
<td>1-2</td>
<td>food, medical</td>
</tr>
<tr>
<td>Actinidia (Actinidia)</td>
<td>10-12</td>
<td>5-8</td>
<td>food</td>
</tr>
<tr>
<td>Magnolia-vine (Schisandra), berries</td>
<td>25-35</td>
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<td>food, medical</td>
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<td>Grapes (Vitis)</td>
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<td>5-7</td>
<td>food</td>
</tr>
<tr>
<td>Cramp (Viburnum)</td>
<td>15-20</td>
<td>10-15</td>
<td>food</td>
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<tr>
<td>Pine nut / Cedar (Pinus sp.), nuts</td>
<td>500-600</td>
<td>586,1</td>
<td>food</td>
</tr>
<tr>
<td>Manchurian walnut (Juglans mandshurica Max.)</td>
<td>100-150</td>
<td>30-40</td>
<td>food, paint and varnish</td>
</tr>
<tr>
<td>Fern (Polypodiophyta sp)</td>
<td>20-25</td>
<td>16,100</td>
<td>food</td>
</tr>
<tr>
<td>Edible mushrooms</td>
<td>40-60</td>
<td>10-15</td>
<td>food</td>
</tr>
<tr>
<td>Tea plucking</td>
<td>300-400</td>
<td>150-200</td>
<td>food, medical</td>
</tr>
<tr>
<td>Tree juice</td>
<td>200-250</td>
<td>50-70</td>
<td>food</td>
</tr>
<tr>
<td>Tree greenery</td>
<td>150,000-200,000</td>
<td>70,000-80,000</td>
<td>for cattle breeding, medical, decorative, technical</td>
</tr>
<tr>
<td>Honey plant</td>
<td>300-400</td>
<td>30-50</td>
<td>food</td>
</tr>
<tr>
<td>Eleuterococcus (Eleutherococcus), root</td>
<td>80-100</td>
<td>24,830</td>
<td>medical</td>
</tr>
<tr>
<td>Aralia (Arália)</td>
<td>3,320</td>
<td></td>
<td>medical</td>
</tr>
</tbody>
</table>


Please refer to Annex I for a short discussion of economic potentials of NTFPs for the Tribal Commune Tiger.
Figure 6: Korean Pine

Photo by P. Krestov

Figure 7: Mongolian Oak

Photo by Y. Darman
**G1.3. Project Boundaries of the Project Area and the Project Zone**

**Project Zone.** As per CCB definition the project zone comprises the project area (defined below) as well as the area of the adjacent communities potentially affected by the project. The adjacent communities are Krasny Yar (located at the very border to the project area), Olon, Soboliny, Lasenevy, Vostok and Okhotnischy.

**Project Area.** The project boundary is delineated by the outer boundary of the Bikin NHZ and the riparian zone comprising the project area. The concession has a total area of 461,154 ha, located in the Pozharsky District, Verkhne-Perevalnenskoe Forestry Unit:

- Sobolinoe Divisional Forestry (compartments 68, 107-117),
- Krasnoyarovskoe Divisional Forestry (compartments 118-308, 326-337, 342-407, 409, 413, 417),

The number of the record on the state forest register is 20/1105006-2009-03. Below map illustrates the location of the compartments within the divisional forest units.

**Figure 8: Project Boundary and Location of Compartments by Divisional Forestries**
In general, the project boundary is illustrated by the black line surrounding the Bikin Nut Harvesting Concession. Within the area of the forest concession, there are some sub-compartments which do not qualify as forest, according to the Forest definition of the Russian Federation (total area: 5,556ha, see Section A.4.2 below). These are excluded from the project area, through they are included in the concession area. Finally, TCT envisages logging fire wood and timber for the demand of the local villages. To meet this demand, logging sites have been specified in TCT’s NTFP management plan (total area 5,224ha). These areas are not included in the project area, though they are part of the concession area. This approach results in project area of 450,374 ha. Exact GPS positions of all points of the project boundary, as requested by the applied methodology, may be provided to the AIE upon request.

This description of the project boundary corresponds to the JI PDD, Section A.4.1.4. The identification of the project area may be found in the JI PDD, Section B.5

### G1.4. Carbon Stocks within the Project Area

A detailed description of the carbon stock evaluation is provided in the JI PDD, Section A.2.

The project area is pristine forest which has not been commercially logged so far. It is classified as a NHZ by a Decision of the Council of Ministers of the Russian Soviet Federative Socialist Republic in the 1950ies. This was done due to the high share of Korean Pine stands in the project area. The Bikin NHZ having a total area of 461,154 ha is by far the largest of all NHZs in Khabarovsk and Primorsky Krai, followed by Vostochnaya NHZ with a total area of 95,303ha (Panichev, 2005). Please refer to Annex 2.2 for a complete list of NHZs in above named Krais.

Out of the total area of the Bikin NHZ, 455,598 ha are classified as forest. From the total forest area 450,374ha constitute the project area. As outlined in Table 1 of the JI PDD, the project area comprises 43.9% of Korean Pine stands, of which 41% have a Korean Pine share of 30% or more by volume (i.e. by dominant stands). Other major tree species are Spruce (36%), Birch species pluralis (i.e. Stony Birch, Yellow Birch and White Birch), Larch (4%) and other species such as Ash, Elm, Fir, Oak and other. The shares of tree species are illustrated in Figure 1 of the JI PDD. The below table provides a summary of the carbon stocks in the project area (please note, density factors are listed in Table 13 of the JI PDD, the biomass expansion factors may be found in Table 14).

<table>
<thead>
<tr>
<th>Table 2: Definition of the Project Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concession Area (in ha)</td>
</tr>
<tr>
<td>Non-Forest Area (in ha)</td>
</tr>
<tr>
<td>Forest Area (in ha)</td>
</tr>
<tr>
<td>Legal Logging Area (in ha)</td>
</tr>
<tr>
<td><strong>Project Area (in ha)</strong></td>
</tr>
</tbody>
</table>
### Table 3: Summary of the Bikin Inventory Analysis

<table>
<thead>
<tr>
<th>Tree Species</th>
<th>Volume in m³</th>
<th>Density in t.d.m.</th>
<th>AGB in t.d.m.</th>
<th>Carbon Stocks in tC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Береза белая – Common/White birch</td>
<td>3,032,512</td>
<td>1,546,581</td>
<td>2,010,556</td>
<td>965,067</td>
</tr>
<tr>
<td>Береза желтая - Yellow birch</td>
<td>14,411,035</td>
<td>7,349,628</td>
<td>9,554,516</td>
<td>4,586,168</td>
</tr>
<tr>
<td>Береза каменная - Stony birch</td>
<td>1,004,381</td>
<td>512,234</td>
<td>665,905</td>
<td>319,634</td>
</tr>
<tr>
<td>Дуб - Oak</td>
<td>1,913,558</td>
<td>1,109,864</td>
<td>1,553,809</td>
<td>745,828</td>
</tr>
<tr>
<td>Ель - Spruce</td>
<td>26,063,948</td>
<td>10,425,579</td>
<td>14,908,578</td>
<td>7,603,375</td>
</tr>
<tr>
<td>Ива - Willow</td>
<td>51,180</td>
<td>23,031</td>
<td>31,783</td>
<td>15,256</td>
</tr>
<tr>
<td>Вяз - Elm</td>
<td>3,621,961</td>
<td>1,777,761</td>
<td>2,396,994</td>
<td>1,150,557</td>
</tr>
<tr>
<td>Кедр (сосна кедровая) - Korean pine</td>
<td>24,064,053</td>
<td>10,106,902</td>
<td>14,756,077</td>
<td>7,525,599</td>
</tr>
<tr>
<td>Клен - Maple</td>
<td>1,323,027</td>
<td>687,974</td>
<td>949,404</td>
<td>455,714</td>
</tr>
<tr>
<td>Лиственница - Larch</td>
<td>3,242,301</td>
<td>1,685,996</td>
<td>2,495,275</td>
<td>1,272,590</td>
</tr>
<tr>
<td>Липа - Lime</td>
<td>6,587,859</td>
<td>2,305,751</td>
<td>3,112,764</td>
<td>1,494,127</td>
</tr>
<tr>
<td>Ольха - Alder</td>
<td>197,557</td>
<td>88,901</td>
<td>122,683</td>
<td>58,888</td>
</tr>
<tr>
<td>Орех маньчжурский - Manchurian walnut</td>
<td>12,264</td>
<td>6,500</td>
<td>8,970</td>
<td>4,306</td>
</tr>
<tr>
<td>Осина - Aspen</td>
<td>793,596</td>
<td>317,438</td>
<td>419,019</td>
<td>201,129</td>
</tr>
<tr>
<td>Пихта сибирская - Fir</td>
<td>10,642,122</td>
<td>4,256,849</td>
<td>5,746,746</td>
<td>2,930,841</td>
</tr>
<tr>
<td>Тополь - Poplar</td>
<td>401,430</td>
<td>140,501</td>
<td>193,891</td>
<td>93,068</td>
</tr>
<tr>
<td>Чозения - Chosenia (lat.)</td>
<td>870,795</td>
<td>391,858</td>
<td>540,764</td>
<td>259,567</td>
</tr>
<tr>
<td>Черемуха - Bird Cherry</td>
<td>2,022</td>
<td>991</td>
<td>1,367</td>
<td>656</td>
</tr>
<tr>
<td>Ясень обыкновенный - Ash</td>
<td>3,597,405</td>
<td>2,050,521</td>
<td>2,829,719</td>
<td>1,358,265</td>
</tr>
<tr>
<td><strong>Sum</strong></td>
<td><strong>101,833,006</strong></td>
<td><strong>44,781,859</strong></td>
<td><strong>62,298,818</strong></td>
<td><strong>31,040,633</strong></td>
</tr>
</tbody>
</table>

**In terms of total carbon stocks, the project area comprises 31.04 million tC or 113.8 million tCO₂, respectively, and average carbon stocks of 68.92tC/ha or 252.71 tCO₂/ha.**

### Table 4: Carbon Stock Summary

| Total Carbon Stock of the Project Area (in tC) | 31,040,581 |
| Total Carbon Stock of the Project Area (in tCO₂) | 113,815,463 |
| Average Carbon per Hectare (in tC/ha) | 68.92 |
| Average Carbon per Hectare (in tCO₂/ha) | 252.71 |

### G1.5. Community Information

**Population.** The territory is characterized by a low population level, even according to Siberian standards. Krasny Yar is populated with 644 people, 531 of which belong to the indigenous peoples of the Udege, Nanaj and Oroch (Zvydonna, 2010). Approx. 60% of the employable population is involved in the forest sector (NTFP, intermediate logging (mainly for fuelwood collection, wood processing and hunting).(Please refer to the statement from the local settlement administration) Nearly 35% of the residents are employed in the service sector, administrative management and municipal services. The probability of a massive increase of the population is very low. Pozharsky
District (Bikin River basin) is characterized by an overall low population density: the rural population is 11.6 thousand persons per 22.7 thousand km² (0.5 persons/km²). Five settlements are situated near the Bikin NZ (Zvydonna, 2010).
- Krasny Yar village
- Olon village
- Soboliny village
- Yasenevy village
- Okhotnichiy village

**Anthropogenic Development** of the nominated territory started in very ancient times. In the 7th century AD Ilou hunters arrived from Zabaikalie. In the process of interaction with the local tribes they created a new Tungus-language society called ‘Mukri’. Its further development went very closely connected to the history and culture of the neighbouring countries (Old Turkish and Old Mongolian peoples). Eventually they came to form modern ethnic groups of the South Tungus language group – the Manchu, Udege, Orochis, Nanais, and Ulchis peoples. In the middle of the 19th century when the Ussuriysky region became part of Russia, indigenous peoples occupied the vast territory from Tatar Strait in the north to the southern tributaries of the Ussury River (Nauka, 1989).

In the 1920’s the Udege people lived in 4 territorial groups, each of them included different families’ representatives. Each family occupied a certain territory, but there was no land ownership. Bikin Udege people had the first contacts to ‘western civilisation’ in the second half of 30’s. The population that at the time consisted of 13 camps was consolidated into 2 villages – Olon and Krasny Yar, where agricultural cartels were founded and then united to the trade cartel “Okhotnik”. The main activities were hunting and the collection of wild-growing herbs in the middle and upper parts of the Bikin river basin (Shnirelman, 1993).

Besides indigenous there lived other peoples like Russians, Ukrainians, Belarus and other nationalities. These persons typically were orthodox Christian believers – clerical outcasts that hid away from Soviet regime. Additionally there was some Chinese influence due to trade relations. This results today in a unique system of religious faiths, which has a bizarre interweaving of the Udege paganism, early churchless Christianity and Chinese Taoism. Basically, at the turn of the 20th century, the Central Sikhote-Alin became the place where East and West - two eternal antipodes - found common language and blended together (Zvydonna 2010).

In 1933 the administration of Primorye acknowledged this ideology and approved the status of the ethnic territory of the Sikhote-Alin, based not on ethnic character, but on the character of prevailing human attitude towards the nature of taiga.

In 1962 the state industrial unit “Pozharsky” of the hunting industry department of the RSFSR Forest Management State Committee was established on the base of the trade cartel “Okhotnik”. In 1976 the Primorye regional council allocated 1,384,000 ha in the Middle and Upper Bikin basin to the state industrial unit. This unit basically produced hunting products – furs, game, wild-growing herbs, drug raw materials and others. Moreover, the unit made fuel wood and produced cork from the Amur cork tree (*Phellodendron amurense* Rupr.).

In 1994 the state industrial unit “Pozharsky” was privatized. It was transformed into JSC “Bikin national hunting farm”. The farm arranged for hunting from the selling of hunting licenses.

In recent years this finally was converted to the JSC “NHF Bikin” – the public organization of indigenous peoples called Tribal Commune Tiger. In 2008 this community acquired the hunting rights for 10 years (long-term license 25 № 000002 from 30.10.2008) and the contract of territory use, water area use, necessary for managing wildlife properties on the 1352100 ha territory (Contract №2 from 17.11.2008).

**Approach to Nature.** For the indigenous people as well as for the early settlers of the Russian Far East, the reasonable and sparing use of natural resources is typical and dates back to ancient times. Hunting, fishing and, to a lesser degree, gathering are mostly for meeting the peoples local needs. Till present days nobody from indigenous population will lift a hand against fallow deer, shoot a tiger or kill more wild fowl than is necessary for his family. Based on this traditional way of
life, culture, customs and attitude to nature, the project area is well conserved, and the natural landscapes and wildlife are still untouched (Zvydonna, 2010).

However today, the existing way of life is at stake to serious transformation or even total disappearance. The conservation of the people’s traditional approach to nature may be as important as the simple protection of the project area. The renewal and strengthening of the ethno-cultural complex is considered as a very important feature of the project activity.

The project area contains nature-historical sites, widely respected by the Bikin Udege people and other minorities of the Primorsky Krai, such as ancient camps (Bynga, Davasty, Laukhe, Metakheza, Kartun, Notovasigchi, Bejlaza, Kandagou, Khabagou, Tantsanza, Sidungou, Kate-Datani, Tugulu, Tsamo-Dynza, Sigou, Ulunga, Bajchelaza, Nyolo and others).

The project area contains ancestral burial sites, the sacred mountain Sulaymay and other sites that comprise the base of the ethnic culture of the Udege people and other native peoples of the Primorsky Krai. Moreover, this territory is a natural habitat of the Amur tiger (*Panthera tigris altaica*), which is a sacred animal for the Udege people (Starcev, 2005).

**Figure 9: Udege students at a traditional dance performance in Krasny Yar**

![Photo by F. Mörschel](image)

**G1.6. Current Land Use**

As discussed above, the project area features a forest cover of 99%. Forest areas are used for the following purposes:

- Minor logging activities. Logging occurs legally to meet the Udege’s fuel wood demand and to provide construction material. Also at a minor scale illegal logging occurs.
- The forest is used for hunting deer, boar, fowl and other animals.
Various Non-Timber-Forest products are collected, such as herbs. Most importantly, Korean Pine stands provide pine nuts. These nuts are collected and commercialized through a trade network.

G1.7. Current Biodiversity

**Fauna.** The diversity of relief features, plants and climate conditions in the Middle and Upper Bikin territory define the species and ecologic diversity of the region's fauna and its distribution throughout the territory. The project area is a habitat for the following mammals:

- American mink (*Mustela vison*),
- Amur Hedgehog (*Erinaceus amurensis*),
- Amur Tiger (*Panthera tigris altaica*),
- Aquatic bat (*Myotis daubentony*),
- Arsenjev's flying squirrel (*Pteromys volans arsenjevi Og.*),
- Badger (*Meles meles*),
- Bi-colored (*Vespertilo murinus*),
- Blue Hare (*Lepus timidus*),
- Brandt's bat (*Myotis brandtii*),
- Common otter (*Lutra lutra*),
- Common Weasel (*Mustela erminea*),
- Himalayan black bear (*Ursus thibetanus*) and brown bear (*Ursus arctos*),
- Ikonnikov's brown bat (*Myotis ikonnikovi*),
- Indian marten (*Martes flavigula*),
- Large-toothed red-backed vole (*Clethrionomys rufocanus*),
- Laxmann's shrew (*Sorex caecutiens*),
- Least weasel (*Mustela erminea*),
- Long-eared bat (*Plecotis auritus*),
- Lynx (*Lynx lynx*),
- Manchu squirrel (*Sciurus vulgaris mantchuricus*) and
- Maral deer (*Cervus elaphus xanthopigus*),
- Moose (*Alces alces*),
- Mountain hare (*Lepus timidus*),
- Mosslike rodents (*Cricetidae and Muridae*),
- Musk Beaver (*Ondatra zibetica*),
- Musk deer (*Moschus moschiferus*),
- Northern pika (*Ochotona heperborea*),
- Northern bat (*Eptisicus nilssonii*),
- Northern coney (*Ochotona alpina*),
- Northern red-backed vole (*Clethrionomys rufocanus*),
- Raccoon dog (*Nyctereutes procyonoides*),
- Roe deer (*Capreolus capreolus*),
- Sable (*Martes zibellina*),
- Siberian Amur tiger (*Panthera tigris altaica*),
- Siberian bat (*Murina leucogaster*),
- Siberian chipmunk (*Tamias sibiricus*),
- Siberian striped weasel (*Mustela sibirica*),
- Siberian weasel (*Lutreola vison*),
- Slender shrew (*Sorex gracilimus*) and several other species of shrew (*Soricidae*),
- Squirrel (*Sciurus vulgaris*),
- Wild hog boar (*Sus scrofa*),
- Wolf (*Canis Lupus*),
- Wolverine (*Gulo gulo*),
- Yellow-throated marten (*Lamprogale flavigula*)
All data presented above is obtained during evaluation of game management reports as well as during field surveys of the Bikin river basin were published in the “Proposal for inscription on the UNESCO Cultural and Natural World Heritage List, Natural Heritage Protection Fund et al., 2010.

Figure 10: Amur Tiger

Amur Tiger (*Panthera tigris altaica*). Listed in the IUCN Red List of Threatened Species and the Russian Red Book. The main object of his hunting is wild boar, whose population in the Bikin area is stable even in bad years for cedar nut crop, due to the abundance of Dutch-rush (*Equisetum hyemale L.*). According to the annual monitoring data, the average density is 0.58 tigers per 100 square km (from 0.29 to 0.97), while the total amount is up to 40 animals.

Figure 11: Brown Bear

Brown Bear (*Ursus arctos*). The highest density of population is in mixed cedar-broadleaf and cedar forests. The proportion between Himalayan black bear and Brown bear is about 1:1.

Himalayan black bear (*Ursus thibetanus*). Lives in cedar-broadleaf forests, density is about 1 unit per 10 square km. It is easier to catch a Himalayan black bear than a Brown bear, and despite of small official quota, its population drops as a result of poaching.
Sable (*Martes zibellina*). The main commercial species in most hunting areas of the Middle and Upper Bikin up to 2000 furs are procured every year. Population density is 5-7 units per 10 square km.

Lynx (*Lynx lynx*). Common but rare species.

Squirrel (*Sciurus vulgaris*). During population peak period this is the most mass commercial species in the territory. Two more representatives of this class have a stable population: Siberian chipmunk (*Eatomias sibiricus*) and flying squirrel (*Pteromis volans*), as well as some mouse-like rodents.
**Figure 15: Badger**

*Badger (Meles meles).* Quite common commercial species of the territory.

*Photo by G. Shalikov*

**Figure 16: Maral**

*Maral (Cervus elaphus).* A commercial species with a population density of 6-8 animals per 10 square km. Lives almost everywhere throughout the Bikin River basin (except the main dividing ridge).

*Photo by V. Medvedev*

**Figure 17: Wild Boar**

*Wild boar (Sus scrofa).* A commercial species with a population density of 6-7 animals per 10 square km. Common in the cedar-broadleaf taiga zone.

*Photo by E. Lepeshkin*
Otter (*Lutra lutra*). A common commercial species in the Bikin river basin. The species population is 107-136 units. Otter’s population drastically decreased in recent years after reduction of fish resources and poaching.

*Musk Beaver* (*Ondatra zibetica*). A commercial species with limited habitat in separate meander lakes and lakes in the western part of the territory. The total population of the commercial species is around 100-120 animals.

*Siberian Striped Weasel* (*Mustela sibirica*). Numerous commercial species with a population density of up to 15 animals per 10 square km.

*American Mink* (*Mustela vison*). This commercial species is the successful result of acclimatization in 1950’s in the territory of the Pozharsky District. The population density in the first yield class areas (rivers’ middle parts more than 150 km long and rivers’ lower reaches 100-150 km long) is 1.2 – 2.4 animals per 1 km of streambed.

*Indian Marten* (*Martes flavigula*). Common for this territory but rare species with a population density below 0.3 units per 10 square km.

*Common Weasel* (*Mustela erminea*). Rare.

*Blue Hare* (*Lepus timidus*) and *Northern coney* (*Ochotona alpina*). These double-toothed rodents have a population density of 2-3 animals per 10 square km.

*Raccoon Dog* (*Nyctereutes procyonoides*). This species is common almost all along the central part of the Bikin river flood plain. The population density of this commercial species is 0.5 – 1 units per 1000 ha.

*Moose* (*Alces alces*). The species is common in the upper Bikin river stream, where it has its highest population density on the old fire sites at the basin of the Ulunga, Zeva, and Kilou rivers. This is the last large population of this species in the Primorsky Krai. The population is 400-500 units.

*Roe deer* (*Capreolus capreolus*). The highest density is along flood plains of the Bikin river till Dunguza and Laukhe. The roe deer population is relatively stable and includes about 500 animals.

*Musk deer* (*Moschus sibiricus*). A common commercial species with a population density of up to 30 animals per 10 square km. Prefers mountainous spruce-fir forests. During hunting season up to 200 animals are procured for musk provision.

Bird fauna of the territory is very uncommon concerning its species composition and ecologic structure. Avifauna of Bikin river basin hasn’t been studied and it is only possible to fragmentary evaluate it. Estimated that 130 species are noted to nest for a fact, however the other species can be met during the seasonal migration period, on wintering grounds or are vagrant. The majority of breeding bird species inhabits the broadleaf and cedar-broadleaf forests of the valleys. Rare feathered species, confined to the river bed and, thereafter, to the fish resources and abundance of amphibian in the flood plain forests, are the following: scaly-sided merganser (*Mergus squamatus*), mandarin duck (*Aix galericulata*), grey-faced buzzard (*Butastur indicus*), osprey (*Pandion haliaetus*) and blakiston's fish-owl (*Bubo blakistoni* or *Ketupa blakistoni*). The Long-billed ringed plover (*Charadrius placidus*) is a very rare endemic species and can be found at vast pebble river bars.
The composition of forest massifs and open meadow landscapes attracts many zootypic day birds of prey and owls: Hobby falcon (*Falco subbuteo*), amur falcon (*Falco amurensis*), besra sparrow-hawk (*Accipiter gularis* or *Accipiter virgatus*), ural owl (*Strix uralensis*), brown hawk-owl (*Ninox scutulata*), Ussury screech owl (*Otus sunia*) and others. Columbiformes (*Columbiformes*) are represented by eastern turtle dove (*Streptopelia orientalis*), apodiformes (*Apodiformes*) are represented by northern needletail (*Hirundapus caudacutus*). Coraciiformes (*Coraciiformes*) are represented by oriental dollarbird (*Eurystomus orientalis*). From the piciformes (*Piciformes*) we can name lesser spotted woodpecker (*Dendrocopos minor*), greater spotted woodpecker (*Dendrocopos major*), white-backed woodpecker (*Dendrocopos leucotos*), black woodpecker (*Dryocopus martius*), and the rare species is grey-capped woodpecker (*Dendrocopos canicapillus*). Common Far East representatives of passeriformes (*Passeriformes*) are large-billed crow (*Corvus macrorhynchos*), azure-winged magpie (*Cyanopica cyana*), masked grosbeak (*Eophona personata*), Tristram's bunting (*Emberiza tristrami*) black-faced bunting (*Emberiza spodocephala*) and yellow-throated bunting (*Emberiza elegans*), long-tailed Rosefinch (*Uragus sibiricus*), black naped oriole (*Oriolus chinensis L.*), white-eye (*Zosterops erythropleura*), ashy minivet (*Pericrocotus divaricatus*), blue-and-white flycatcher (*Muscicapa cyanomelana*), narcissus flycatcher (*Ficedula zanthopygia*), Siberian rubythroat (*Luscinia calliope*), Siberian blue robin (*Luscinia cyane*), gray-backed thrush (*Turdus hortulorum*), eastern crowned warbler (*Phylloscopus coronatus*), pale-legged leaf-warbler (*Phylloscopus tenellipes*), black-browed reed warbler (*Acrocephalus bistrigiceps*) and gray's grasshopper warbler (*Locustella fasciolata*) (Shibniov, 2004).
**Amphibians and reptiles.** 7 amphibian species and 10 reptile species occur in this territory. Even among the limited number of reptiles here, there are rare and endemic species: grass lizard (*Takydromus wolteri*), European grass snake (*Rhabdophis tigrina*), Siberian ratsnake (*Elaphe schrenki*), Amur ratsnake (*E. rufodesata*), mamushi (*Agristrodon blomhoffi*) and Korean snake (*Gloydius saxatilis*).

**Ichthyofauna.** Benthos and nekton are well developed in the Bikin river. The river plankton is poorly developed and is mainly represented by microalgae, rotifers (*Rotifera, =Rotatoria*) and crustaceans (*Crustacea*). Benthos in the Bikin river basin is represented by various gastropods (*Gastropoda*) and bivalvia (*Bivalvia*) shellfish, water insects larvae, oligochaetes (*Oligochaeta*), crustaceans (*Crustacea*) as well as numerous microzoobenthos and microphytobenthos (Shibniov, 2004).

**Entomofauna.** 28 insect species listed in the Russian Red Book inhabit the territory (Annex C1). Lepidopterous insect fauna includes many southern species, endemics and widespread species: swallowtail butterfly (*Papilio*), a number of large emperor moths (*Actias*), purple emperor (*Apatura*), underwing moth (*Limemtis*) and black-and-white aeroplane (*Neptis*); beetles are represented by pruners (*Cerambycidae*), bark beetles (*Ipidae*) and gold-beetle (*Chrysomelidae*).

G1.8 Evaluate whether the project zone includes any of the following High Conservation Values (HCVs) and describe the qualifying attributes:

**G1.8.1 Globally, regionally or nationally significant concentrations of biodiversity values:**
- protected areas;
- threatened species;
- endemic species (define the level of endemism);
- areas that support significant concentrations of a species during any time in their lifecycle.

a) The project area is a **Nut Harvesting Zone**. According to the current Forest Codex (2007), Article 102, §4 NHZs are classified as High Value Forests. Moreover, Article 102, §2 states that High Value Forests are classified as protected forests. Consequently the project area is classified as protected area.

b) In Bikin, a range of **endangered species** could be identified. These are listed in the table below. VU corresponds to the IUCN classification ‘vulnerable’, EN corresponds to the IUCN classification ‘endangered’ and CR corresponds to the IUCN classification ‘critically endangered’.

<table>
<thead>
<tr>
<th>No.</th>
<th>Scientific Name</th>
<th>Common Name</th>
<th>Distribution and Conservation Status</th>
<th>Habitat</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td><em>Panthera tigris</em> ssp. <em>altaica</em></td>
<td>Amurskiy Tiger</td>
<td>Southern part of RFE – <strong>EN</strong></td>
<td>Sikhote Alin mountain region, rocky Korean Pine-broadleaf forests</td>
</tr>
<tr>
<td>2</td>
<td><em>Ketupa blakistoni</em></td>
<td>Blakiston's Fish-owl</td>
<td>The coastal mountain ranges of eastern Siberia, the Amur Basin, Russia, China and central and eastern Hokkaido, Japan – <strong>EN</strong></td>
<td>It inhabits dense forest, with large, old trees for nest-sites, near lakes, rivers, springs and shoals that do not freeze in winter.</td>
</tr>
<tr>
<td>3</td>
<td><em>Aythya Baeri</em></td>
<td>Baer's Pochard</td>
<td>The Amur and Ussury basins in Russia and north-eastern China - <strong>EN</strong></td>
<td>It breeds around lakes with rich aquatic vegetation in dense grass or flooded tussock/shrubby meadows.</td>
</tr>
</tbody>
</table>
4 **Mergus Squamatus**  
Chinese Merganser  
Khabarovsk, Amur, the Jewish Autonomous Region and Primorye in south-east Russia, North Korea and north-east China – **EN**  
Below c.900 m in mountainous areas, along rivers with tall riverine forest, mainly within the temperate conifer-broadleaf forest zone.

5 **Grus monacha**  
Hooded Crane  
South-central and south-eastern Siberia, Russia – **VU**  
Remote, wooded, upland bogs on gently sloping foothills and flat river terraces, mostly within the permafrost zone.

6 **Ciconia Boyciana**  
Far East Stork, Oriental Stork  
The Amur and Ussury basins along the border of Russia and mainland China – **EN**  
Open, usually fresh water, wetlands, and occasionally coastal tidal flats with high trees.

7 **Ursus thibetanus**  
Asian Black Bear  
N.A.: **VU**  
N.A.

8 **Moschus moschiferus**  
Musk deer  
Siberia and the Far East, Kazakhstan, China, Mongolia, Republic of Korea and Democratic People's Republic of Korea: **- VU**  
inhabits the mid-mountain belt where it prefers dark coniferous forest with dense shrubs and rocky outcrops, using such rocky areas to escape from predators.


These species were identified by using the report “Research and Basis of Bikin River Basin Value for Hunting and Rare Animal Species”, by Vladimir Aramiliev on behalf of WWF Russia, Russia, Amur Branch. The species identified in above report, have been crosschecked with the International Union for Conservation of Nature (IUCN) list of endangered species (IUCN 2011).

c) The following endemic species were partly identified by reviewing the Russian Red Data Book, partly by interviewing Mr. Vladimir Aramiliev, Pacific Ocean Institute of the Russian Academy of Science. Mr. Aramiliev has been conducting biodiversity assessments in the project region for 20 years. Please note, the endemism of below species refers to endemism in the Russian Far East, not specifically to the Bikin area.

### Table 6: Endemic Species in the Project Area

<table>
<thead>
<tr>
<th>No.</th>
<th>Scientific Name</th>
<th>Common Name</th>
<th>Distribution and Conservation Status</th>
<th>Habitat</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td><em>Panthera tigris</em> ssp. <em>altaica</em></td>
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<td>The coastal mountain ranges of eastern Siberia, the Amur Basin, Russia, China and central and eastern Hokkaido, Japan – <strong>EN</strong></td>
<td>It inhabits dense forest, with large, old trees for nest-sites, near lakes, rivers, springs and shoals that do not freeze in winter.</td>
</tr>
<tr>
<td>4</td>
<td><em>Ciconia Boyciana</em></td>
<td>Far East Stork, Oriental Stork</td>
<td>The Amur and Ussury basins along the border of Russia and mainland China – <strong>EN</strong></td>
<td>Open, usually fresh water, wetlands, and occasionally coastal tidal flats with high trees.</td>
</tr>
<tr>
<td>5</td>
<td><em>Aythyba Baeri</em></td>
<td>Baer's Pochard</td>
<td>The Amur and Ussury basins in Russia and north-eastern China - <strong>EN</strong></td>
<td>It breeds around lakes with rich aquatic vegetation in dense grass or flooded tus-</td>
</tr>
<tr>
<td></td>
<td>Scientific Name</td>
<td>Common Name</td>
<td>IUCN Status</td>
<td>Location Status</td>
</tr>
<tr>
<td>---</td>
<td>----------------</td>
<td>-------------</td>
<td>-------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>9</td>
<td><em>Mergus squamatus</em></td>
<td>Chinese Merganser</td>
<td>N.A. - EN</td>
<td>N.A.</td>
</tr>
<tr>
<td>10</td>
<td><em>Martes flavigula</em></td>
<td>Yellow-throated Marten</td>
<td>N.A. - LC</td>
<td>N.A.</td>
</tr>
<tr>
<td>11</td>
<td><em>Ursus thibetanus</em></td>
<td>Asian Black Bear</td>
<td>N.A: - VU</td>
<td>N.A.</td>
</tr>
<tr>
<td>12</td>
<td><em>Pelodiscus sinensis</em></td>
<td>Chinese soft-shelled Turtle</td>
<td>N.A. – VU</td>
<td>N.A.</td>
</tr>
<tr>
<td>13</td>
<td><em>Aix galericulata</em></td>
<td>Mandarin Duck</td>
<td>N.A. – LC</td>
<td>N.A.</td>
</tr>
<tr>
<td>14</td>
<td><em>Falcipennis falcipennis</em></td>
<td>Siberian Grouse</td>
<td>N.A. - NT</td>
<td>N.A.</td>
</tr>
</tbody>
</table>

The project area has 188,023.9 ha of forest stands with a Korean Pine share of 30% or more. Korean Pines produce pine nuts that are on the one hand an important food source for ungulates. On the other hand, Koran pine stands guarantee plant diversity, which are food sources in general. Ungulates themselves are the major food source of the Amur Tiger. Consequently the conservation of the area contributes to the protection of endemic and endangered species.

**G1.8.2** Globally, regionally or nationally significant large landscape-level areas where viable populations of most if not all naturally occurring species exist in natural patterns of distribution and abundance.

**Global and National Landscape Significance.** The project area is classified as a Nut Harvesting Zone. As such it is the natural home of the endemic Amur Tiger (and the other species listed in the table above) being on the IUCN Red List of Threatened Species. As such the area has a regional, national and global significance.

The project area comprises large Korean pine stands (*Pinus koraiensis* Siebold et Zucc.). These stands are unique by species composition, structure, age structure and other factors and are considered to be the basis of the biodiversity and ecological stability in the Far East. They are the habitat of rare species as well as economically valuable forests.

In the beginning of the 20th century these stands were wide-spread in the central and southern parts of the Russian Far East, but now the area has decreased by more than 2 times. The more important it is to protect the Korean pine stands in the Bikin river basin, which are still relatively little disturbed.

**G1.8.3 Threatened or rare ecosystems**

**NHZ as a Threatened Ecosystem.** There is large commercial interest in the timber. Korean Pine usually grows in association with Ash, Oak and other commercially valuable tree species. There is a large economic interest in these tree species leading to the disturbance of these ecosystems. Hence, NHZ have to be considered a threatened ecosystem.

In spite of the fact, that modern forest legislation in Russia prevents commercial logging in NHZ, there are other kinds of logging which can critically influence the forests. According to legislation, wood cutting is allowed in NHZ to improve the forest condition. In reality those cuttings are a source of additional income for logging companies and are often being overdone. Even though Korean pine was forbidden for logging in November 2010, those forest stands continue to be attractive for loggers as they comprise valuable species such as ash and oak. It is concluded that despite the general lack of roads, logging will expand in NHZs and threaten the ecosystem.
G1.8.4 Areas that provide critical ecosystem services

**Korean Pine Stands.** The project area comprises 200.199 ha of Korean pine stands (i.e. stands having a share of Korean Pine above 30%). Traditionally Udege people used pine nuts as a kind of food, but volumes were small. Nuts were used as a source of nutrients along with other non-timber forest products. When "gospromhozes" were organized in Soviet times, the Udege began harvesting pine nuts to generate income. Revenues differed year by year, because Korean pine has a cycle of productivity where a good productive year is once in 4 years. When a year was productive, all families, adults and children, took part in the process of harvesting. Due to a high unemployment rate among the indigenous people, pine nut harvesting has become one of the major sources of income and a growing perspective for income in the future (Zvydonna, 2010). As mentioned before, Korean Pine nuts have a great value in the food cycle of this ecosystem, as a feed for wild boar, bear, squirrel and other animals which are prey of the Tiger as well as objects of hunting.

**Water Regulation Function.** Moreover, the forest areas in the project region have a strong important water regulatory function. Forest stands, especially those having a high share of spruce, significantly reduce the water runoff. This helps regulating the water regime of the Bikin and its feeder rivers. Hence the project area offers critical ecosystem services for watershed management. This reduces the occurrence of floods in the lower Bikin river regions and in the Ussury river, thus lowering the flood risk for Bikin (village), Vayzernskiy, Khor and other settlements.

G1.8.5 Areas that are fundamental for meeting the basic needs of local communities

The entire area of the Bikin valley is considered as a TTNU - an area for traditional nature use for the local indigenous tribes – namely the Udege and the Nanai. Korean Pine stands being specifically common in NHZs are of large importance for the Udege. They make part of their living from collecting Korean Pine nuts (KPN) and selling them to intermediates for final processing and commercialization. The KPN volumes vary from year to year. Highest yields that the indigenous commercial organization “Tribal Commune Tiger” reported amount to 20 tons of KPN per year (2006-2007 season). Prices per kg vary depending on regional yields. In the last years prices ranged from 2.5USD/kg to 10USD/kg. Currently (i.e. November 2010) the price is 8USD/kg. Based on an average yield of 10tons per year and based on current prices (8USD/kg) the average income from KPN collection amounts to 80,000USD/y which is an important source of income for the Udege.

Shamanism and naturopathy are still practiced and important in the absence of well-equipped hospitals. The necessary herbs and medical plants are abundant and being collected in the Bikin forest. Moreover, the Udege use the Bikin forest as hunting ground for the provision of furs and meat. The availability of ungulates is directly linked to the integrity of NHZs. The Bikin river, whose integrity in turn depends on the riparian and mandshurian intact forest along its banks and adjacent mountain slopes, is an important source for fishing. The Udege cover a large part of their livelihoods from fishing. Overall it is concluded that the project area is fundamental for meeting the basic needs of local communities.

All of the above information was gathered during several personal consultations with Mr. Vladimir Shirko, head of the TCT.

G1.8.6 Areas that are critical for the traditional cultural identity of communities

In the project area a lot of natural and historic objects are located, which are esteemed by the Udege and other indigenous people of Primorye. There are places of age-old settlements: Bynga,
Lauhe, Metaheza, Kartun, Habagou and others. These ancient settlements are historic and cultural memorials covering information on Russian history. Also the sacred hill Sulaymay and other natural objects are located there. In addition, the entire project territory is tiger habitat which is a sacred animal for the Udege people.

There are some places in the project area that are avoided by the Udege, and that are not shown to visitors. These places can be old settlements that have been abandoned e.g. due to epidemics and are hence places which are, according to Udege belief, populated by evil spirits. Hunters avoid these places. The same applies to natural reserves or rest zones for animals’ reproduction. Memorials and sacred places are distributed across the whole project territory. Taking into account the special relationship between the Udege people and the territories of their living, the whole territory of traditional nature use should become protected as natural and cultural heritage territory. The relationship between people, land and forest is the basis of the Udege way of living. The development of traditional activities will raise the responsibility for areas of national history and future and will help to protect the territory (Bereznitskiy, 2003).

Figure 19: One of Udege's Sanctuaries

Source: M. Burian. The image shows a sanctuary place at the Bikin river. This is a holy place for the Udege where they offer oblations to their gods asking for safe travel.
G2. Baseline Projections

G2.1 Describe the most likely Land-Use Scenario in the Absence of the Project

Please refer to section B4 of the JI PDD for a detailed description of the most likely land use scenario in absence of the proposed project.

Logging operations classified as ‘Selective Commercial Logging’ as well as ‘Intermediate Logging including Selective Sanitary Logging’ would occur in absence of the project activity. The related baseline emissions are calculated following strictly the formulae of the selected Logged to Protected Forest methodology (VCS approved methodology VM00011).

G2.2 Document that Project Benefits would not have occurred in the Absence of the Project

A detailed analysis of the project’s additionality following the CDM EB’s additionality tool for CDM A/R projects may be found in section B4 of the JI PDD.

G2.3 Calculate the estimated Carbon Stock Changes associated with the ‘Without Project’ Reference Scenario described above.

Projects whose activities are designed to avoid GHG emissions must include an analysis of the relevant drivers and rates of deforestation and/or degradation and a description and justification of the approaches.

A detailed description of the model and its application to the baseline scenario is provided in section B.4 of the JI PD. In summary baseline emissions consider the decay of deadwood, the decomposition of harvested wood products, the re-growth after logging operations and emissions directly and indirectly related to logging operations. The below table demonstrates the findings for the first 10 years of the project.

<table>
<thead>
<tr>
<th>Year</th>
<th>( C_{\text{DW decay},t} )</th>
<th>( C_{\text{THWP oxidation},t} )</th>
<th>( C_{\text{STHWP oxidation},t} )</th>
<th>( C_{\text{rerowth},t} )</th>
<th>( C_{\text{degradation},t} )</th>
<th>( C_{\text{emissions},t} )</th>
<th>( C_{\text{baseline},t} )</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1,358</td>
<td>5,302</td>
<td>20,501</td>
<td>1,345</td>
<td>94,657</td>
<td>1,839</td>
<td>96,496</td>
</tr>
<tr>
<td>2</td>
<td>5,090</td>
<td>28,371</td>
<td>33,508</td>
<td>4,892</td>
<td>227,614</td>
<td>5,157</td>
<td>232,771</td>
</tr>
<tr>
<td>3</td>
<td>8,612</td>
<td>28,875</td>
<td>33,508</td>
<td>8,440</td>
<td>229,367</td>
<td>5,157</td>
<td>234,524</td>
</tr>
<tr>
<td>4</td>
<td>11,935</td>
<td>29,367</td>
<td>33,508</td>
<td>11,987</td>
<td>230,350</td>
<td>5,157</td>
<td>235,507</td>
</tr>
<tr>
<td>5</td>
<td>15,071</td>
<td>29,848</td>
<td>33,508</td>
<td>15,534</td>
<td>230,607</td>
<td>5,157</td>
<td>235,764</td>
</tr>
<tr>
<td>6</td>
<td>18,031</td>
<td>30,318</td>
<td>33,508</td>
<td>19,467</td>
<td>228,764</td>
<td>5,157</td>
<td>233,921</td>
</tr>
<tr>
<td>7</td>
<td>20,823</td>
<td>30,778</td>
<td>33,508</td>
<td>24,029</td>
<td>223,959</td>
<td>5,157</td>
<td>229,116</td>
</tr>
<tr>
<td>8</td>
<td>23,459</td>
<td>31,227</td>
<td>33,508</td>
<td>28,592</td>
<td>218,538</td>
<td>5,157</td>
<td>223,696</td>
</tr>
<tr>
<td>9</td>
<td>25,946</td>
<td>31,666</td>
<td>33,508</td>
<td>33,155</td>
<td>212,537</td>
<td>5,157</td>
<td>217,694</td>
</tr>
<tr>
<td>10</td>
<td>28,293</td>
<td>32,094</td>
<td>33,508</td>
<td>37,718</td>
<td>205,985</td>
<td>5,157</td>
<td>211,142</td>
</tr>
</tbody>
</table>
Drivers of Degradation. The proposed project avoids forest degradation. The main driver for forest degradation is commercial timber harvest. The species of main interest are Oak, Ash and Elm. But also more abundant species as Spruce, Fir and Larch are harvested at large scale.

<table>
<thead>
<tr>
<th>Table 8: Economic Value of Timber</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lowest Value (in Rubel/m³)</td>
</tr>
<tr>
<td>---</td>
</tr>
<tr>
<td>Oak</td>
</tr>
<tr>
<td>Ash</td>
</tr>
<tr>
<td>Larch</td>
</tr>
<tr>
<td>Elm</td>
</tr>
<tr>
<td>Spruce and Fir</td>
</tr>
<tr>
<td>Birch</td>
</tr>
<tr>
<td>Aspen</td>
</tr>
</tbody>
</table>

Source: Data collected by WWF Russia, Amur Branch based on interviews of forest experts in Primorye.

The regional logging volume was evaluated by calculating the applicable Annual Allowable Cut (AAC) for selective commercial logging and intermediate logging in the project area. A detailed description of the calculation approach is provided in Annex 2.1 of the JI PD. The Forest Department confirmed that these calculations are correct. Please refer to Annex 2.3 of the JI PD. The calculations were conducted by the independent state Far East Forest Research Institute (FFRI) and were adapted to the project area in a conservative manner.

<table>
<thead>
<tr>
<th>Table 9: Baseline Logging Area and Volumes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Validity</td>
</tr>
<tr>
<td>---</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Year 1</td>
</tr>
<tr>
<td>Year 2-10</td>
</tr>
</tbody>
</table>

G2.4 Describe how the ‘Without Project’ Reference Scenario would affect Communities in the Project Zone

The without the project scenario is characterized by logging operations in the project area. It is anticipated that this would result in the following impacts on the local community and the Udege people:

- Logging companies and lumber men would come to the region. They would purchase food and other goods and eventually create jobs. This would result in additional income for the local population. But at the same time this would bring a different mindset (i.e. harnessing nature for revenues) into the region. This would disturb the local community who is currently living in comparable harmony with nature and may eventually divide the local population into those who benefit and those who do not benefit from logging operations. This would have a strong negative impact on the Udege’s current way of living and their social cohesion.

- In the remote areas of the Russian Far East, loggers usually hunt to meet their food needs. This would have a negative impact on the populations of hunting animals which are necessary for the Udege to meet their own food needs.
Logging operations would have a strong negative impact on biodiversity. In the short term it would reduce the undergrowth of forest sites which are crucial for giving shelter to deer, wild boar and other animals. In consequence the population of these animals would decrease. As the Udege depend on hunting these animals, their food supply may be negatively impacted.

Logging operations may also decrease the availability of other non-timber forest products such as Korean Pine nuts and herbs. The Udege collect these NTFPs for their own needs and for commercialization. A decrease of the availability of NTFPs would negatively affect the income of the Udege.

Finally, as outlined above, logging operations would decrease the deer and boar populations. These animals are the typical prey of the Amur Tiger which is a sacred animal to the Udege.

It is concluded that the baseline scenario would have an overall strong negative impact on the local community. The Udege are aware of these threats and consequently have been fighting any logging attempts in the region for decades.

G2.5 Describe how the ‘Without Project’ Reference Scenario would affect Biodiversity in the Project Zone

As elaborated above, logging operations would have strong impacts on biodiversity. The subsequent negative impacts are anticipated:

- Disturbance of the old-growth, uneven aged forest sites and their ecological balance.
- Decrease of Korean Pine trees in the project area, including a decrease of pine nuts which are important source of fodder for many species.
- Decrease of wild boar, deer populations due to decrease of shelter, food resources, and due to hunting activities.
- Due to the decrease of their prey, decrease of Amur Tiger- and bear populations.
- Logging operations would also impact the ecosystem’s capacity to store water, especially in the upper regions. This would significantly alter the water regime and have a negative impact on the populations of many species e.g. the fish owl.

It is concluded that the “Without Project” scenario would have an overall strong negative impact on the biodiversity in the project area and the neighboring zones.
G3. Project Design and Goals

G3.1 Provide a Summary of the Project’s major Climate, Community and Biodiversity Objectives.

The project has the following objectives:

- **Objective 1:** Protect the project area from logging operations
- **Objective 2:** Contribute to climate change mitigation due to the reduction of emissions due to logging
- **Objective 3:** Development of a carbon finance concept for nature conservation which may serve as lighthouse project/blueprint for similar project activities
- **Objective 4:** Conservation of the unique biodiversity of the project area including the conservation of Korean Pine stands and preservation of the Amur Tiger habitat and its prey.
- **Objective 5:** Support of the Udege population in the collection and commercialization of NTFPs.
- **Objective 6:** Support the Udege population in its social development by the modernization of infrastructure and the improvement of local education.

G3.2 Describe each Project Activity with expected Climate, Community and Biodiversity Impacts and its relevance to achieving the Project’s Objectives.

**Activity 1: Lease the NHZ and the riparian zone for protection.** From all activities listed in this section, the lease of the project area is deemed to be of utmost importance. TCT leased the project area from the forest department of Primorye in June 2009. The lease contract grants TCT to use the project area for its own (modest) wood demands, to use it for NTFPs and it stipulates that the project area may not be given to companies for logging. As such this activity is a very important step to ensure the integrity of the project area. This contributes to objective 1-6.

**Activity 2. Anti-Poaching Patrols.** The project envisages establishing anti-poaching patrols. Patrols shall be conducted by a team of up to 12 persons. The patrols will not only ensure that poaching will not occur, it will also protect the project area from illegal logging. As such, this activity contributes to objectives 1-6.

**Activity 3. Fire Protection Activities.** The project will sign a contract with the forest department of Primorye to finance fire fighting activities in the project area. This includes regular control flights by helicopter or airplane and the eventual engagement of paratroopers for fire fighting. This will contribute to achieving objective 4.

**Activity 4: Investment in the social development of the Udege community.** The project envisages financing a range of social development activities based on carbon revenues. This includes the development of ecotourism infrastructure, facilitation of internet access, modernization of electricity generation, and improvement of local teaching. Please refer to Section CM1 for more details. This will contribute to objective 6.

G3.3 Provide a Map identifying the Project Location and Boundaries of the Project Area(s), where the Project Activities will occur, of the Project Zone and of Additional surrounding Locations that are predicted to be impacted by Project Activities (e.g. through leakage).
In addition to the above map, section G1.1. of this document provides a map of the location of the project area in Primorsky Krai. Section G1.3 provides a map showing the detailed delineation of the project activity. The project activities will be implemented in the project area. As discussed in Section E.4 of the JI PD, there will be replacement of logging operations i.e. the direct leakage.

The contract between TCT and the forest department foresees a concession lease period of 49 years, i.e. from 2009 to 2058. This determines the lifetime of the project. It is envisaged to apply GHG accounting for the same time period. However, this depends on the existence of a future climate regime that secures a demand for emission reduction certificates of the proposed project activity. If this future climate regime will not come to existence, it may be the case that the GHG accounting period ends prior to the end of the lease period. Currently the Russian JI procedures...
foresee a crediting period which equals the crediting period of the Kyoto Protocol, i.e. until end of 2012.

Still in this case, the calculation of emission reductions would be conservative, as the conservation of the project activity (and hence the reduction of emissions) persists due to the lease contract.

The major milestones for the project development are:

- Undersigning of the lease contract for the project area (achieved in 2009)
- Determination of the JI PDD and issuance of a Letter of Approval (LoA) by the responsible institution of the Russian Federation. This will grant the project the right to generate emission reduction certificates sell those and generate income for financing future project activities. It is envisaged that the LoA will be issued in the 3rd or 4th quarter of 2012.

### G3.5 Identify likely natural and human-induced Risks to the expected Climate, Community and Biodiversity Benefits during the Project Lifetime and outline Measures adopted to Mitigate these Risks.

Two major human-induced risks are anticipated which would have strong negative impacts on climate, community and biodiversity. These are legal and illegal logging:

**Legal Logging.** TCT signed a lease contract with the forest department of Primorye. This contract enables TCT to generate carbon credits for forest protection, it also ensures that the project area cannot be given away as a lease to a logging company. It is envisaged, that this measure adequately mitigates the risk of legal logging.

**Illegal Logging.** The second risk arises from illegal logging. Market developments showed an increase of timber prices in Primorye over the last years (please refer to Section E.4 of the JI PD for detailed analysis) which increases the incentives for illegal logging in the project area (being one of the last large un-logged forest areas in the Krai).

It is envisaged to mitigate this risk through engaging anti-poaching patrols. These patrols will not only prohibit illegal hunting, they also will watch out for illegal logging. The supervision will be further complemented by frequent control flights and by annual evaluation of remote sensing data. It is envisaged that the set of these measures adequately mitigates the risk of illegal logging.

**Forest Fire.** One major natural risk can be identified in the project area. Forest fires are considered a natural risk to the expected community, biodiversity and climate benefits. In the last years, forest fires occurred at a low scale. The average annual area burnt amounts to 17.7ha. The annual average volume burnt amounts to 512 m3/yr (please refer to Table 33 of the JI PD for a detailed analysis). Based on these historic events, forest fire is considered as a moderate threat to the project’s benefits.

Still the project involves a detailed plan for forest fire fighting. The project contracts the State Forest Fire Fighting service of the forest department of Primorye to protect the area. This includes the regular monitoring activities as well as fire fighting activities, if a fire is detected. It is envisaged that this approach minimizes the threats of forest fires.

### G3.6 Demonstrate that the project design includes specific measures to ensure the maintenance or enhancement of the high conservation value attributes identified in G1 consistent with the precautionary principle.

The project aims at avoiding logging operations in the project area. Thereby it very inherently contributes to the high conservation values identified in Section G1:
Protecting the area from logging contributes to the maintenance of the NHZ which is classified as High Conservation Values (HCV) area according to the Russian Forest Code.

Protecting the area from logging contributes to protecting threatened and endangered species living in the project area.

Protecting the area from logging contributes to the conservation of the NHZ as a threatened ecosystem, its water regulatory function and Korean Pine stands providing pine nuts (which are used by TCT as NTFP).

Finally, protecting the area from logging will allow for preserving the natural sanctuaries of the Udege.

G3.7 Describe the measures that will be taken to maintain and enhance the climate, community and biodiversity benefits beyond the project lifetime.

Three measures are currently being implemented to ensure the maintenance of the project’s main benefits:

- First, the concession lease was signed for 49 years, i.e. from 2009 to 2058. As such, the project is designed as a very stable and long lasting activity. It will ensure that the project’s climate, community and biodiversity impacts (which are inherently connected to the preservation of the project area) will be maintained in the very long term.

- Second, as discussed in Section G3.4 above, it might be the case that the ghg accounting period ends prior to the end of the lease contract. In this case, the project will continue to lease the concession ensuring the maintenance of the project’s climate, community and biodiversity impacts.

- Finally, WWF Russia, Amur Branch is already and will continue to fight for a higher protection status of NHZs in the Primorsky Krai. If successful, the forest regulation in the far future is well established and a unique ecosystems as the project area will no more have to rely on NGO initiatives to ensure its protection.

Even though long time periods involve high uncertainties, TCT and WWF Russia, Amur Branch hope that the combination of these three approaches will ensure the maintenance of the project benefits.

G3.8 Document and defend how communities and other stakeholders potentially affected by the project activities have been identified and have been involved in project design through effective consultation, particularly with a view to optimizing community and stakeholder benefits, respecting local customs and values and maintaining high conservation values. Project developers must document stakeholder dialogues and indicate if and how the project proposal was revised based on such input. A plan must be developed to continue communication and consultation between project managers and all community groups about the project and its impacts to facilitate adaptive management throughout the life of the project.

Consultations Prior to Project Start. It shall be noted that the proposed project follows an inherent stakeholder consultation approach. TCT, as representative of the local community, conducts frequent community meetings. During these meetings, all strategic decisions related to the community including the proposed project are discussed. Already in May of 2009, i.e. prior to project start, the community decided to develop the proposed project activity.

Identification of the stakeholders. Krasny Yar is the only village located in the project area. It is the key settlement for all related project activities. Krasny Yar is a rather small settlement featuring about 600 habitats, large part of them are indigenous people of the Udege tribe.

Meeting in Krasny Yar. The Stakeholder consultation in Krasny Yar was announced in the village in advance, access to the room was open. People represented village authorities, local Duma, lo-
cal teachers, and local businesses. The list of key stakeholders is presented below. There were two topics of discussion:

- Evaluation of First Year of TACIS project
- Project of WWF Germany and WWF Russia (Bikin Project).

### Table 10: Stakeholder List - Consultations in Krasny Yar

<table>
<thead>
<tr>
<th>Person/Organization/Company</th>
<th>Position/occupation/sector of activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Darman Y. A.</td>
<td>Director of WWF Russia, Amur Branch</td>
</tr>
<tr>
<td>2 Kanchuga G. L.</td>
<td>Member of Duma; School principle</td>
</tr>
<tr>
<td>3 Kanchuga N. D.</td>
<td>Coordinator of TACIS project</td>
</tr>
<tr>
<td>4 Kalugin S. A.</td>
<td>Member of Duma; Forester of TCT</td>
</tr>
<tr>
<td>5 Kolodin I. A.</td>
<td>Head of Operational brigade of TCT</td>
</tr>
<tr>
<td>6 Kudryavtsev A. V.</td>
<td>Deputy; Chairman of TCT</td>
</tr>
<tr>
<td>7 Kuznetsova T. N.</td>
<td>Member of Duma; Executive coordinator of TACIS project</td>
</tr>
<tr>
<td>8 Shirko V.A.</td>
<td>President of the Regional public organization Association of indigenous peoples of the North of Primorsky Krai, Chairman of the indigenous peoples enterprise “Tiger” of Krasny Yar village, deputy of Duma of Pozharsky municipal district</td>
</tr>
<tr>
<td>9 Uza A.L.</td>
<td>Head of Krasny Yar village</td>
</tr>
<tr>
<td>10 Lepeshkin E. A.</td>
<td>Coordinator of Korean Pine forest conservation, WWF Russia, Amur Branch</td>
</tr>
<tr>
<td>11 Lee R.</td>
<td>Manager of curio workshop</td>
</tr>
<tr>
<td>12 Rogov I. I.</td>
<td>Coordinator of WWF projects in Krasny Yar</td>
</tr>
<tr>
<td>13 Rogova M. K.</td>
<td>Executive coordinator of TACIS project</td>
</tr>
<tr>
<td>14 Sun V. A.</td>
<td>Deputy</td>
</tr>
<tr>
<td>15 Titova S. I.</td>
<td>Coordinator of WWF Protective areas projects</td>
</tr>
</tbody>
</table>

After a lengthy discussion, it was decided to compile:

- Endorse the project establishment
- Endorse Bikin NHZ leasing
- Create execution group on Bikin project

**Stakeholder Involvement.** The proposed project features a unique level of stakeholder involvement:

- First, the local tribe, the TCT, has signed the lease contract, will be the beneficiary of carbon revenues according to the Russian JI procedures and is the project proponent. I.e. the project is owned by the local community.
- WWF Russia, Russia, Amur Branch assists TCT with project development and implementation. This is done in close and permanent coordination with the TCT. Part of the WWF staff is permanently based in the project area. The project coordinator works with TCT on an intermittent basis, partly in the project area and partly in Vladivostok. This allows for a very close coordination with TCT and the head of TCT, Mr. Shirko. Both parties have signed a Letter of Agreement that lines out the respective roles and responsibilities in the development of the Bikin Carbon Project.
- Two local stakeholder consultation processes were conducted, one in Krasny Yar (in the project area) and one in the nearest town of Luchegorsk. A detailed description on how stakeholders were invited, comments received and on the decisions on the project design is provided in Section G of the JI PDD. Community and stakeholder benefits will be optimized by the implementation of the social investment plan. This plan will be coordinated between
TCT, Ministry for Economy and Trade (MEDT) and Sberbank. The plan currently envisages annual investments in the range of 200,000€. The specific activities are laid out in the community section.

- A plan for continued stakeholder communication exists. TCT is conducting regular stakeholder meetings, which take place at least twice per year. The invited stakeholders are representatives of following organizations:
  - Pozharskiy municipal district administration;
  - Duma of Pozharsky municipal district;
  - Verkhne-Perevalnensky branch of Provincial Department “Primorskoïe forestry”;
  - Forestry Department of Primorsky Krai;
  - Administration of Krasny Yar settlement;
  - Indigenous peoples enterprise “Tiger” of Krasny Yar village;
  - WWF Russia, Russia, Amur Branch

During the meetings recent developments are discussed and taken decisions are documented in meeting protocols.

- Twice a year, a newsletter is being issued by the local community where less active community members are being informed, among other topics, on the progress of the carbon project.

G3.9 Describe what specific steps have been taken and communications methods used, to publicize the CCBA public comment period to communities and other stakeholders and to facilitate their submission of comments to CCBA.

The project documentation has been posted on the CCBA website (www.climate-standards.org) where it was open to comments from the public. CCBS informed the public through email lists on the publication of the project documentation and the start of the commenting period. Additionally the JI P DD was published at the UNFCCC website for the Global Stakeholder Consultation Process.

The document has also been available to the public in hard copy during the public comment period, at WWF Russia, Amur Branch office, offering local stakeholders an opportunity to raise and address any issues.

Additionally the CCB PDD was presented and discussed with the local stakeholders and the head of TCT, as representative of the local community. The project description is available for commenting at the TCT office in Russian language. A note was published at TCT’s information table, that the document is available for commenting.

G3.10 Formalize a clear process for handling unresolved conflicts and grievances that arise during project planning and implementation.

It is WWF Russia, Amur Branch’s mission to work closely- and in mutual understanding with the local community towards project implementation. Any comments received will be discussed and it will be jointly decided with TCT how these can be amended in the project design.

This approach was also applied to the local stakeholder consultation process. The project received comments in both workshops and joint decisions on how to proceed were taken. These are documented in Section G of the JI PD. The suggested practice has proven to be a smooth conflict resolution approach in the past and it envisages to successfully solve any potential conflicts in the future project implementation.

- An independent third party was appointed for conflict resolution. This is the chairman of Pozharsky municipal district Duma (Currently Mr. Kirpichev Viktor Stepanovich)
- Whenever a conflict arises, which cannot be solved to mutual agreement by the project itself, any stakeholder may contact the independent third party.
The independent third party shall arrange for a joint meeting of assembly of Krasny Yar together with TCT representatives.

The meeting shall be organized and take place in a time period of not more than 30 days.

During the meeting, the Mayor shall:
  - Hear the positions of both parties without any personal prejudices.
  - Facilitate the discussion of the issue of conflict and the exchange of opinions of both parties.
  - Take a final decision on how to solve the parties’ conflict if still no compromise or consensus may be realized.

It is assumed that the above procedures allow solving any potential conflicts.

Documented procedure is available at Pozhrsky Duma. Above steps will be implemented in case of conflict arise. Additionally the public was informed about the existence of the grievance process

Notes were published at the informational table in Krasny Yar village and in the TCT office.

G3.11 Demonstrate that financial mechanisms adopted, including projected revenues from emissions reductions and other sources are likely to provide an adequate flow of funds for project implementation and to achieve the anticipated climate, community and biodiversity benefits.

All project development costs and the costs of project operation of the first two years are covered through a grant of the German Ministry for Environment. There are no uncovered costs for project development.

Based on the ex-ante estimates of emission reductions (please refer to section A4.4 of the JI PD for a summary), the project is anticipated to generate substantial carbon revenues. These revenues will allow to cover the annual lease costs (approx. 35,000€/yr), project management (including verification) and the costs of social investments as indicated in Section CM2.2. The summary of the proposed project’s expenditures and revenue structure is presented in below table:

<table>
<thead>
<tr>
<th>Table 11: Expected Project Expenditures and Revenues</th>
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<tbody>
<tr>
<td><strong>Item</strong></td>
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<tr>
<td>Total Conservation Costs</td>
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<tr>
<td>Sberbank Fee for ERU Issuance</td>
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<tr>
<td>Concession Fee</td>
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<tr>
<td>Rangers (for anti-poaching, preventing illegal logging, and fire-fighting)(salary, equipment, operational costs)</td>
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<tr>
<td>Aerial fire-fighting service</td>
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<tr>
<td>Monitoring</td>
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<tr>
<td>Social investment costs, to be determined with Commune Tiger and according to funds available</td>
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<tr>
<td><strong>Annual Carbon Revenues</strong></td>
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<td><strong>Annual Volume of Carbon Certificates</strong></td>
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<td><strong>Carbon Price per Certificate</strong></td>
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<tr>
<td><strong>Source</strong>: Bikin JI Project - Social Investment Plan, Exchange Rate Ruble: Euro of 40.8207:1</td>
</tr>
</tbody>
</table>

As can be seen from the table above, it is expected that the project is financially sustainable based on the carbon revenue generation stream in the mid and long term.
G4. Management Capacity and Best Practices

G4.1 Identify a single project proponent which is responsible for the project’s design and implementation. If multiple organizations or individuals are involved in the project’s development and implementation the governance structure, roles and responsibilities of each of the organizations or individuals involved must also be described.

The Tribal Commune Tiger (TCT) is the project owner and hence the owner of emission reduction certificates. CF Partners (UK) LLP is the buyer of Emission Reduction Units and acts as second project participant. TCT will be supported by WWF Russia, Amur Branch and WWF Germany in the project implementation though both institutions do not act as project participant. The roles are defined as follows:

- TCT is in charge for leasing the project area and for preserving its environmental integrity.
- CF Partners (UK) LLP will act as buyer of Emission Reduction Units.
- WWF Russia, Amur Branch facilitates the actual project implementation in the region (facilitation of signing of lease contract, engaging of poaching patrol, financing of fire protection measures, facilitating of social investments etc). To adequately fulfill this role, WWF Russia, Amur Branch has engaged a highly qualified project manager as well as a range of additional experts.
- WWF Germany oversees the overall project implementation and is in charge of the management of the climate project.

Both WWF Russia, Amur Branch as well as WWF Germany have an outstanding track record in management and implementation of conservation projects and have engaged qualified personnel to ensure the project success.

Please note the specific roles for the conduction of monitoring activities are discussed in Section D.3 of the JI PD.

G4.2 Document key technical skills that will be required to implement the project successfully, including community engagement, biodiversity assessment and carbon measurement and monitoring skills. Document the management team’s expertise and prior experience implementing land management projects at the scale of this project. If relevant experience is lacking, the proponents must either demonstrate how other organizations will be partnered with to support the project or have a recruitment strategy to fill the gaps.

The project setup requires the following key technical skills:

- **Project Management.** The overall responsibility for the project implementation is assumed by the head of the TCT. The head will be in charge of supervising the anti-poaching activities, plan and implement the community development activities and of managing the NTFP harvesting by TCT. The head shall be familiar with NTFP harvesting, shall be well linked to the local authorities and shall be generally accepted and elected by the local community. This position is currently held by Mr. Vladimir Shirko.

- **Project Advice.** The project management shall be supported by a project advisor from WWF Russia, Amur Branch. The project advisor shall hold a university degree in forestry, natural resource management or related field. He shall have project management experience of at least two years. This position is currently held by Mr. Evgeny Lepeshkin. Evgeny is a forester by training and he offers outstanding expertise in NTFPs. Evgeny is very well connected to TCT and is hence capable of advising the project in close coordination with TCT. Evgeny is supported by Denis Smirnov, head of the forest team, WWF Russia, Amur Branch and by Yuri Darman, head of WWF Russia, Amur Branch. Yuri and his team manage an annual budget...
of several millions USD for conservation projects. They offer an outstanding expertise in this field.

- **Remote Sensing.** The monitoring of the climate project requires a sound expertise in the evaluation of remote sensing data to prove the integrity of the project area. The remote sensing activities shall be executed by qualified specialists being familiar with remote sensing analyses related to forestry. The specialists shall have experience of at least two years in the related field and shall be familiar with the forest structure and its remote sensing interpretation in the region. WWF Russia, Amur Branch offers a remote sensing department (currently three experts) that has the equipment and the infrastructure to conduct this kind of analysis. Alternatively, the remote sensing activities may be outsourced to a qualified company. The first monitoring steps were conducted by the State Forest Inventory Service company ‘Dallesproject’, based in Khabarovsk.

- **Biodiversity Evaluations.** WWF Russia, Amur Branch regularly conducts biodiversity evaluations. If appropriate this may eventually be subcontracted to biodiversity experts, depending on the required expertise. The biodiversity evaluations shall be lead by experts who do have hands-on experience in the conduction of biodiversity evaluations in the region.

- **Biomass Monitoring.** If natural diseases or illegal logging occurs, the project will be required to determine the decrease of the commercial volumes of forest stands at smallest scale (in Russia so-called sub-compartment). This will be conducted following the forest inventory guidance of the forest department of Primorsky Krai. Biomass monitoring shall be conducted only by experts who are familiar and able to cope with the Primorski krai inventory guidance.

- **Fire fighting.** Fire fighting requires the capacities to conduct fire monitoring by remote sensing analysis as well as by control flights. If a forest fire is detected, fire fighters must be familiar with the strategies, steps and equipment to control the fire. Fire fighting activities will be subcontracted to the Forest Department of Primoriye. The fire fighting department is well equipped with a helicopter and an airplane. Its staff is well trained and fire fighting activities will be implemented only by skilled and qualified personnel.

- **Management of the Climate Project.** Finally WWF Germany manages the climate component of the project activity and will offer a climate advisor to the project. Activities comprise the development of project documentation, the facilitation of the submission of documents to the responsible authority in Russia as well as the arrangement of frequent validations to generate emission reductions. Hence the climate advisor shall be familiar with the overall project cycle of climate projects as well as with the JI procedures in Russia. This position is currently held by Mrs. Guénola Kahlert. Guénola is a highly qualified carbon project development expert of WWF; she is deeply familiar with various forest carbon mechanisms and offers work experience from other forest carbon projects.

Includes a plan to provide orientation and training for the project’s employees and relevant people from the communities with an objective of building locally useful skills and knowledge to increase local participation in project implementation. These capacity building efforts should target a wide range of people in the communities, including minority and underrepresented groups. Identify how training will be passed on to new workers when there is staff turnover, so that local capacity will not be lost.

People employed by the project work in the following areas:

- Anti-poaching guards
- Fire Fighting
- Field coordination
People involved in fire-fighting and anti-poaching have been trained relevant disciplines to the reasons of possible risks mitigation, to professional skills development, and to increase work efficiency (for more details see G4.6). The below table presents the training plan for the training activities as laid out in Section G4.6).

<table>
<thead>
<tr>
<th>Table 12: Training Plan</th>
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<tr>
<td><strong>Trainee</strong></td>
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<td><strong>Fire Fighting</strong></td>
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<tr>
<td><strong>Fire Fighters</strong></td>
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<tr>
<td><strong>Anti Poaching</strong></td>
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</table>

WWF field coordinator, based at Krasny Yar, Ivan Rogov was involved in both heads of fire brigades and anti-poaching trainings.

Since project is located in a remote area it may not always possible to conduct a new training course. If a new employee is hired, and if no training course will be conducted, the new colleague will be instructed by his team colleagues who do have the appropriate training and training certificates for field coordination, fire fighting and anti-poaching. This will ensure that the training and knowledge is passed on to all team members. The anti-poaching brigade consists of people that lifestyle is closely related to taiga; they have skills in weapon use, on-the-ground co-ordination, etc. The main re-training aim will be refreshing of knowledge regarding report preparation and studying of Laws and Regulations in field of illegal nature use. Fire-fighting re-training of brigades will be conducted by head of fire-fighting brigade. Taking of courses is required in case if the all of the anti-poaching brigade stuff is changed and there is no any person that can conduct this training courses.

**Consideration of Minorities.** The proposed project is implemented by TCT which represents the Udege people. The Udege themselves are considered as indigenous minority and hence are an underrepresented group. Based on this setup, no respective rules for the consideration of minorities are needed.

**G4.4** Show that people from the communities will be given an equal opportunity to fill all employment positions (including management) if the job requirements are met. Project proponents must explain how employees will be selected for positions and where relevant, must indicate how local community members, including women and other potentially underrepresented groups, will be given a fair chance to fill positions for which they can be trained.

The proposed project will be implemented by TCT. As a project owner, TCT is in charge for spending carbon revenues and hiring workers along their preferences. TCT is a community representing
the indigenous tribe of the Udege people. As such, it is per se ensured that indigenous people are not disadvantaged.

**Procedures for Selecting the Head of TCT.** According to the TCT charter, the Head of the commune is selected annually from among its members. The Head is appointed by the meeting of the three founding members of TCT.

**Procedures for Selecting Anti-Poaching Guards.** Selection was carried out in accordance with established rules of employment of the Labor Code. According to the Labor code no one may be restricted in labor rights and liberties, or receive any benefits, regardless of gender, race, color, nationality, language, origin, property, family, social and employment status, age, residence, religion, political beliefs, membership or non-governmental associations, as well as from other circumstances not related to the professional qualities.

Candidates for anti-poaching guards are being selected according to the following criteria:

- Work experience in forestry/game management services,
- Knowledge of the area,
- Skills of boat navigation,
- Skills of snow-mobile navigation.

G4.5 Submit a list of all relevant laws and regulations covering worker’s rights in the host country. Describe how the project will inform workers about their rights. Provide assurance that the project meets or exceeds all applicable laws and/or regulations covering worker rights and, where relevant, demonstrate how compliance is achieved.

**Relevant Laws.** In Russia all workers laws, regulations and related procedures related to worker’s rights are governed by the Labor Code of the Russian Federation.

**Labor Code, Article 10.** In addition to national legislation, the Labor Code Article 10 makes reference to international worker’s laws/treaties. Generally accepted principles and norms of international law and international treaties of the Russian Federation shall be, pursuant to the Russian Federation Constitution, constituent parts of the Russian Federation legal system. Should an international treaty signed by the Russian Federation set the rules differing from those stipulated by national laws and other national, normative legal acts containing the labor law norms, the international treaty norms shall apply.

**Labor Code, Article 13.** Article 13 of the Labor Code ‘Protection of Labor Rights of Employees. Resolution of Labor Disputes. Responsibility for the Infringement of Labor Code’ prescribes the procedures that can solve the problems. The general approach for the protection of labor rights is as follows:

- State supervision and control over the observance of the Labor Code;
- Protection of labor rights of employees by trade unions;
- Protection of labor rights by the employees themselves.

**Compliance with Labor Code.** TCT assures that it is well aware of all relevant worker laws and comply with the existing regulation. The employment of TCT workers is governed by TCT’s Charter:

- TCT Charter, §1.2 specifies “All activity of the Commune shall be carried out in accordance with constitution of the Russian Federation, Federal act “About general principals of communes of indigenous peoples of North, Siberia and Far East of the Russian Federation”,

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2 Please refer to Section G4.5 below.
3 Article 10 of the Labor Code titles: ‘Laws, other normative legal acts containing the labor law norms and the international law norms’

- TCT Charter, § 8.1 states that TCT’s employment of citizens of the Russian Federation and commune shall be conducted in accordance with the legislation and in accordance with the TCT Charter.

It is concluded that the proposed project meets all national labor regulations. So far, there was not one single case of a worker suing TCT or WWF Russia, Amur Branch for non-compliance with worker regulation.

**Information of Workers on their Rights.** TCT hires local workers on the basis of the TCT Charter, but without specific written labor agreements. When hired, each worker is orally informed about his duties and rights. Moreover he is informed that his rights are formulated in the TCT charter and he is required to become familiar with the charter. The TCT charter is available in the TCT office in Krasny Yar and can be provided upon request.

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**G4.6** Comprehensively assess situations and occupations that pose a substantial risk to worker safety. A plan must be in place to inform workers of risks and to explain how to minimize such risks. Where worker safety cannot be guaranteed, project proponents must show how the risks will be minimized using best work practices.

The following situations potentially involve a risk to worker safety:

- Fire Fighting
- Anti Poaching

The applied risk mitigation trainings are described below.

**Fire Fighting.** First, it shall be noted, that fire fighting is conducted by the forest department itself. The forest department is responsible for the training of fire fighting staff. This training consists of two stages:

- **First stage - Preparation of heads of fire brigades:**
  - First aid
  - Types and methods of fire-fighting
  - Forest fires classification
  - Preparation of reports
  - Strategy of fire-fighting
  - Studying of fire-fighting related laws and documentation
  - Methods of Briefing

- **Second stage - Briefing by heads of fire brigades:**
  - Initial briefing (includes all the information and is very detailed)
  - Secondary briefing (repeating of obtained information, examination of retained knowledge)
  - Site briefing (repeating of the basis rules, and scrutiny of the particular fire-fighting strategy)

- In exceptional cases of big fires, the fire department will involve TCT in fighting large forest fires. In this case, each and any member of TCT will get an ad-hoc training prior to engagement. The ad-hoc training will be given by qualified staff of the forest fire fighting section of the forest department.

**Anti Poaching.** Anti-poaching guards usually take guns along their patrols. Carrying of weapons typically involves risks for the user. Any new member of the Anti-Poaching brigade has to take several courses prior to engagement:

- Methods of weapons using. Which include, shooting, and theoretical part (types of hunters weapons, safety norms, and so on)
- On-the-ground co-ordination: includes methods of on-the-ground orientation without special equipment, and with special equipment e.g. GPS trackers; base knowledge of GIS software; Map-reading, and so on.
- Indication of illegal logging and illegal hunting activities, ways of report preparation.
- Studying of regulatory frameworks, on fishing, hunting, and forestry.

It is assumed that the above trainings are appropriate to mitigate risks to worker safety.

G4.7 Document the financial health of the implementing organization(s) to demonstrate that financial resources budgeted will be adequate to implement the project.

All project development costs and the costs of project operation of the first two years are covered through a grant of the German Ministry for Environment. There are no uncovered costs for project development. As can be seen from the table presented in section G3.11, it is expected that the project is financially sustainable based on the carbon revenue generation stream in the mid and long term.

WWF Germany and WWF Russia, Amur Branch (as part of WWF Russia) are NGOs registered in Germany and in Russia. Both entities are sufficiently capitalized to implement the proposed project. The financial statements of the last years may be provided to the DOE upon request.

**G5. Legal Status and Property Rights**

G5.1 Submit a list of all relevant national and local laws and regulations in the host country and all applicable international treaties and agreements. Provide assurance that the project will comply with these and, where relevant, demonstrate how compliance is achieved.

The use of the project area is governed by three legal documents:
- The Forest Codex of the Russian Federation (2007)
- Rules of Use of Forest with different protective Status (2010)
- Rules of Wood Harvesting (2007),

None of these legal documents prohibits the project implementation. A detailed analysis is provided in Section B4 of the JI PDD (page 21f).

G5.2 Document that the project has approval from the appropriate authorities, including the established formal and/or traditional authorities customarily required by the communities.

The project has the approval from the forest department of Primorye (being the appropriate authority). The approval was issued by undersigning of the lease contract for the project area. The contract may be provided to the DOE upon request.

Additionally to above, the project has gained the approval of the relevant JI authorities in Russia, i.e. Ministry for Economy and Trade and Sberbank.

G5.3 Demonstrate with documented consultations and agreements that the project will not encroach uninvited on private property, community property, or government property and has obtained the free, prior, and informed consent of those whose rights will be affected by the project.
A detailed delineation of the project area is provided in Section A.4.1.4 of the JI PD. This area is identical with the area for which the TCT has undersigned the lease contract. This can be verified on the basis of the lease contract (which explicitly lists all compartments). No further areas are included in the project area. Consequently, the project is not implemented on other private property, community property or government property.

G5.4 Demonstrate that the project does not require the involuntary relocation of people or of the activities important for the livelihoods and culture of the communities. If any relocation of habitation or activities is undertaken within the terms of an agreement, the project proponents must demonstrate that the agreement was made with the free, prior, and informed consent of those concerned and includes provisions for just and fair compensation.

The proposed project does not foresee the relocation of people. Villages and settlements are excluded from the project area. Not applicable.

G5.5 Identify any illegal activities that could affect the project’s climate, community or biodiversity impacts (e.g., logging) taking place in the project zone and describe how the project will help to reduce these activities so that project benefits are not derived from illegal activities.

**Illegal Logging.** As discussed under Section G3.5, there is the risk of illegal logging. Market developments showed an increase of timber prices in Primorye over the last years (pls refer to Section E.4 of the JI PDD for detailed analysis) which increases the incentives for illegal logging in the project area (being one of the last large unlogged forest areas in the Krai). It is envisaged to mitigate this risk through engaging anti-poaching patrols. These patrols will not only prohibit illegal hunting, they also will watch out for illegal logging. The supervision will be further complemented by frequent control flights and by annual evaluation of remote sensing data. It is envisaged that the set of these measures adequately mitigates the risk of illegal logging. Please refer to Section D of the JI PDD for a detailed description of illegal logging monitoring activities.

G5.6 Demonstrate that the project proponents have clear, uncontested title to the carbon rights, or provide legal documentation demonstrating that the project is undertaken on behalf of the carbon owners with their full consent. Where local or national conditions preclude clear title to the carbon rights at the time of validation against the Standards, the project proponents must provide evidence that their ownership of carbon rights is likely to be established before they enter into any transactions concerning the project’s carbon assets.

The TCT is the project proponent and has undersigned the lease contract for the project area with the forest department of Primorsky Krai. This contract enables TCT to claim emission reduction certificates for forest protection measures. The contract can be provided to the DOE upon request.
CLIMATE SECTION

CL1. Net Positive Climate Impacts

| CL1.1 Estimate the net change in carbon stocks due to the project activities using the methods of calculation, formulae and default values of the IPCC 2006 GL for AFOLU or using a more robust and detailed methodology. |

Reference is made to the baseline & monitoring methodology “Estimating GHG Emission Reductions from Planned Degradation (Improved Forest Management)” developed under the Verified Carbon Standard (VCS). The methodology is available under the below link:
- www.v-c-s.org/methodologies/VM0011

Prior to being registered by the VCS, any VCS methodology must undergo a two phased validation process. The first and second VCS methodology assessment report may under the following link:
- www.v-c-s.org/sites/v-c-s.org/files/VM0011%20First%20Assessment%20Report.pdf

Please note, the VCS methodology allows for considering ‘positive leakage’. These emissions are directly attributable to the project activity, occur outside of the project boundary and increase the volume of emission reductions. JISC’s Guidance of Criteria for Baseline Setting and Monitoring (JISC18, Version 02) explicitly constrain leakage for Land Use, Land Use Change and Forestry (LULUCF) to ‘negative leakage’5. The proposed project determines the volume of these types of emissions but does not include these in the calculation of emission reductions. This was done to ensure consistency with JI rules and procedures and is considered to be conservative.

This methodology was applied, as the CDM is restricted to Afforestation/Reforestation and hence does not cover Forest Management as stipulated under Article 3.4 of the Kyoto Protocol. Consequently, there is no applicable CDM methodology.

Complementing above methodology, the following tools and guidelines were applied:
- Tool for testing significance of GHG emissions in A/R CDM project activities, Version 1, CDM EB 31,
- Tool for testing the significance of GHG emissions in A/R CDM project activities, Version 1, CDM EB 31,
- VCS Agriculture, Forestry and Other Land Use (AFOLU) Requirements6, Version 3.2,
- Guidance of Criteria for Baseline Setting and Monitoring, JISC18, Version 02;

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4 Downloaded at 27th October 2011 from www.v-c-s.org/methodologies/VM0011
5 JISC18, §17 stipulates: “Leakage is the net change of anthropogenic emissions by sources and/or removals by sinks of GHGs which occurs outside the project boundary, and that can be measured and is directly attributable to the JI project. In the case of JI LULUCF projects, only the increased anthropogenic emissions by sources and/or reduced.”
6 Downloaded at the 13th February 2012 from www.v-c-s.org/program-documents/afolu-requirements-v30#overlay-context=program-documents
Below table presents the anticipated net anthropogenic removals by sinks for the first ten years of the project activity:

<table>
<thead>
<tr>
<th>Year t</th>
<th>( C_{\text{degradation}} ) (In tCO2)</th>
<th>( C_{\text{emissions}} ) (In tCO2)</th>
<th>( C_{\text{actual}} ) (In tCO2)</th>
<th>Leakage In tCO2</th>
<th>Net Anthropogenic Removals by Sinks (In tCO2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>94,657</td>
<td>1,839</td>
<td>817</td>
<td>18,931</td>
<td>76,748</td>
</tr>
<tr>
<td>2</td>
<td>227,614</td>
<td>5,157</td>
<td>817</td>
<td>45,523</td>
<td>186,432</td>
</tr>
<tr>
<td>3</td>
<td>229,367</td>
<td>5,157</td>
<td>817</td>
<td>45,873</td>
<td>187,834</td>
</tr>
<tr>
<td>4</td>
<td>230,350</td>
<td>5,157</td>
<td>817</td>
<td>46,070</td>
<td>188,621</td>
</tr>
<tr>
<td>5</td>
<td>230,607</td>
<td>5,157</td>
<td>817</td>
<td>46,121</td>
<td>188,826</td>
</tr>
<tr>
<td>6</td>
<td>228,764</td>
<td>5,157</td>
<td>817</td>
<td>45,753</td>
<td>187,351</td>
</tr>
<tr>
<td>7</td>
<td>223,959</td>
<td>5,157</td>
<td>817</td>
<td>44,792</td>
<td>183,507</td>
</tr>
<tr>
<td>8</td>
<td>218,538</td>
<td>5,157</td>
<td>817</td>
<td>43,708</td>
<td>179,171</td>
</tr>
<tr>
<td>9</td>
<td>212,537</td>
<td>5,157</td>
<td>817</td>
<td>42,507</td>
<td>174,370</td>
</tr>
<tr>
<td>10</td>
<td>205,985</td>
<td>5,157</td>
<td>817</td>
<td>41,197</td>
<td>169,129</td>
</tr>
</tbody>
</table>

Please refer to Section B4 of the JI PDD for a detailed evaluation.

CL1.2 Estimate the net change in the emissions of non-CO2 GHG emissions such as CH4 and N2O in the with and without project scenarios if those gases are likely to account for more than a 5% increase or decrease (in terms of CO2-equivalent) of the project’s overall GHG emissions reductions or removals over each monitoring period.

Please refer to Section B3 of the JI PDD for a detailed evaluation of non-CO2 gases included or excluded in the baseline- and project case. Non-CO2 gases were only neglected if the approach is conservative.

CL1.3 Estimate any other GHG emissions resulting from project activities.

As described under Section B4 of the JI PDD, any other emissions of the project activity are accounted for.

CL1.4 Demonstrate that the net climate impact of the project is positive.

Please refer to Section E.6 of the JI PDD for the evaluation of the project’s net climate impacts.

CL1.5 Specify how double counting of GHG emissions reductions or removals will be avoided, particularly for offsets sold on the voluntary market and generated in a country with an emissions cap.

The proposed project is located in Russia which is listed as Annex I country under the Kyoto Protocol and faces an emission cap. Russia accounts for its sinks and sources of forest management. The proposed project will be submitted under the Joint Implementation mechanism and the generated Emission Reduction Units will be subtracted from Russia’s national cap. Consequently double counting will not occur.
CL2. Offsite Climate Impacts (‘Leakage’)

CL2.1 Determine the types of leakage that are expected and estimate potential offsite increases in GHGs (increases in emissions or decreases in sequestration) due to project activities. Where relevant, define and justify where leakage is most likely to take place.

As discussed in section E4 of the JI PDD, direct leakage cannot occur and indirect leakage is unlikely. Section E4 provides a detailed analysis based on:
- Identifying economically attractive areas for commercial logging
- Showing that logging may not be expanded as these areas are already leased
- Investigating the export ratio outside of the country.
Based on this analysis, a default leakage discount sector is applied; leakage emissions are quantified and subtracted from the project’s overall emission reductions.

CL2.2 Document how any leakage will be mitigated and estimate the extent to which such impacts will be reduced by these mitigation activities.

As discussed in section E4 of the JI PDD, direct leakage cannot occur and indirect leakage is unlikely. If market leakage occurs, it will not be possible to be mitigated. The proposed project consequently accounts for market leakage.

CL2.3 Subtract any likely project-related unmitigated negative offsite climate impacts from the climate benefits being claimed by the project and demonstrate that this has been included in the evaluation of net climate impact of the project.

As market leakage may not be excluded, the project applies a default value provided by the Voluntary Carbon Standard. As can be seen in Section E.6 of the JI PDD, market leakage is subtracted from the project’s overall emission reductions.

CL2.4 Non-CO2 gases must be included if they are likely to account for more than a 5% increase or decrease (in terms of CO2-equivalent) of the net change calculations (above) of the project’s overall off-site GHG emissions reductions or removals over each monitoring period.

As discussed in Section B3 and B4 of the JI PDD, the proposed project accounts for all relevant non-CO2 emissions. Only those non-CO2 emissions are not accounted for, which can be conservatively neglected.

CL3. Climate Impact Monitoring

CL3.1 Develop an initial plan for selecting carbon pools and non-CO2 GHGs to be monitored, and determine the frequency of monitoring.

The project documentation features a well developed monitoring plan which is provided in Section D of the JI PDD. The monitoring plan of the proposed project is based on the monitoring methodology stipulated in the VCS methodology chosen (VM011).
CL3.2. Commit to developing a full monitoring plan within six months of the project start date or within twelve months of validation against the Standards and to disseminate this plan and the results of monitoring, ensuring that they are made publicly available on the internet and are communicated to the communities and other stakeholders.

The monitoring plan will be webhosted as part of the JI PDD at the UNFCCC website. Additionally a note will be published at the entrance of TCT’s office in Krasny Yar. This note will state that
- The full monitoring plan is available at the office.
- That a Russian summary of the monitoring plan is available at the office, and
- That the local population is invited to discuss the monitoring plan with the head of the TCT.
- The head of the TCT will document all comments and provide these to the DOE.

The results of the monitoring activities will be published by the UNFCCC as a monitoring report. Additionally the project documentation will be submitted to the responsible authorities in the Russian Federation (i.e. Ministry of Economy and Trade and Sberbank).
CM1. Net Positive Community Impacts

CM1.1 Use appropriate methodologies to estimate the impacts on communities, including all constituent socio-economic or cultural groups such as indigenous peoples (defined in G1), resulting from planned project activities. A credible estimate of impacts must include changes in community well-being due to project activities and an evaluation of the impacts by the affected groups. This estimate must be based on clearly defined and defendable assumptions about how project activities will alter social and economic well-being, including potential impacts of changes in natural resources and ecosystem services identified as important by the communities (including water and soil resources), over the duration of the project. The ‘with project’ scenario must then be compared with the ‘without project’ scenario of social and economic well-being in the absence of the project. The difference (i.e., the community benefit) must be positive for all community groups.

Methodology. This section of the CCB documentation adopts two community development tools which were initially developed for community development projects by the International Council on Mining and Metals (ICMM, 2005). These tools are not developed for a specific sector/type of community development. Specifically the following tools were used as reference:
- Tool 2 – Social Baseline Study
- Tool 3 – Social Impact and Opportunity Assessment

Udege – the Local Tribe. Udege ancestors lived in different territories of what is today the Primorsky Krai. First mentions about the Udege (Udagay people) were in Chinese annals in the XII century. At that time, the tribe lived in the Khor river basin, and later they spread widely across the river basins of the Sikhote-Alin range. In spite of their nomadic life, the Udege highly rated places where that were good hunting grounds, such as the Bikin river basin. In 21st century, when first ethnographic descriptions of Primorye were made, Udege families had lived there for a long time. They formed 8 territorial groups; one of them was the Bikin group. This group lived on the middle-stream and upstream of Bikin (See Figure at the right). Today, their descendants live in Krasny Yar and other Bikin settlements.

Udege Population. Most of the population is concentrated in the settlement of Krasny Yar, where more than 650 persons live. A small number of Udege people live in Olon (about 30 persons) and Okhotnichiy (4 persons), which are located quite near, and some of

Figure 21: Udege Areas in the 19th and 20th Century

Source: History of social, economical and cultural development of Udege people* by A. Startsev, 2000
them in the settlements of Yasenevo and Soboliniy, which are located 10-12 km from Krasny Yar. Some Udege families of the Bikin group also live in other settlements in Primorsky Krai. In addition to the Udege people, representatives of other indigenous people live in these settlements (Nanai, Oroch, etc.) and outside people, but more than 80% of the population is Udege and most of them lead the same mode of living (Zvydonna, 2010).

**Udege Belief.** In scientific terms, the Udege’s spiritual belief is classified as “animism”. The Udege believe that they are surrounded by an almost infinite number of nature spirits. They believe that e.g. each animal and each tree has its own soul. But there is also a vertical hierarchy among these spirits – there are so-called spirits-masters of e.g. rivers, streams, forests, hills, etc. Among these, the important spirits are considered as the ancestors’ souls. This belief is accompanied by a system of customs and rites which are devoted to the Udege’s hunting culture. According to their belief, every place has its own master which watches on every hunter in order to prevent him from taking more than he actually needs. So traditionally each hunter asks for the spirits’ support (through rites and/or sacrifice) for getting luck (Bereznitskiy, 2003).

Within the Udege’s traditions, the Amur Tiger is a very important animal. To some families/dynasties, the tiger is a totem animal. Generally the tiger is considered as a powerful patron and protector which is asked for luck in hunting. The tiger is also considered as the master of forests who could punish for a breach of laws and who could distinguish good and bad people (Startsev, 2005).

Nowadays the Udege don’t always follow strictly the old rules and rites. Today, for an Udege there are some abstract spirits related to fire, water, hills, forest and so on. Still, hunters continue to esteem the spirit of forest and the master of the forest (i.e. the Amur Tiger), but they rarely use the spirits names. Some traditional Udege families still perform rites, sometimes using special places in the forest, but most of them have been forgetting the ancestors’ belief since Soviet times, when every religion was considered as a brake for progress (Zvydonna, 2010).

**Udege’s Nature Use.** In 2003 the indigenous people community “Tiger” was organized – as a public organization for the purpose of protecting the traditional places of living, the re-development of a traditional way of living, customs and culture. The community gives employment to about 50% of the population of Krasny Yar. More than 170 persons work in the community, most of them are indigenous. They are heads of families, so their income is strongly related to the overall family income. All of them are hunters, fishers, and collectors of non-timber forest products. The community makes use of the nature in the following ways:

<table>
<thead>
<tr>
<th>No.</th>
<th>Category</th>
<th>Item</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>NTFP</td>
<td>Korean Pine Nuts</td>
<td>Udege collect Korean Pine nuts in the Korean Pine stands for domestic use but also for commercialization</td>
</tr>
<tr>
<td>2</td>
<td>NTFP</td>
<td>Siberian Ginseng</td>
<td>Ginseng is collected in the forest for medicinal purposes. It has a lot of health-giving qualities. Ginseng is included in the Russian Red Data Book, which makes collecting of ginseng a violation of the law. It is still being collected for use in traditional medicine, but also because it brings high prices when sold to the Chinese market. Some Udege even make little plantations of ginseng in the forest.</td>
</tr>
<tr>
<td>3</td>
<td>NTFP</td>
<td>Tchaga</td>
<td>Tchaga is a birch mushroom which is used in traditional medicine and as a food addition as a substitute for tea.</td>
</tr>
<tr>
<td>4</td>
<td>NTFP</td>
<td>Schisandra</td>
<td><em>Schisandra chinensis</em> is a liana with good tonic and restorative qualities. It is used in traditional and official</td>
</tr>
</tbody>
</table>
medicine. People use the liana itself and the berries of schisandra. It contains a lot of vitamins.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th>Medicine</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>NTFP</td>
<td>Blueberries</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Udege collect blueberries for domestic consumption as well as many other berries (cranberry, cowberry). If they have a market to sell it, they sell.</td>
</tr>
<tr>
<td>6</td>
<td>Hunt</td>
<td>Meat</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Udege hunt animals for meat for domestic purposes and at times they sell it to e.g. loggers.</td>
</tr>
<tr>
<td>7</td>
<td>Hunt</td>
<td>Furs</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Udege hunt animals for furs which are used either for domestic purposes or being sold at the local market. In the recent years the prices for furs were low.</td>
</tr>
<tr>
<td>8</td>
<td>Fishing</td>
<td>Fish</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Udege fish for local fish species for their own consumption. At times villagers from nearby villages outside the project area drive up the Bikin river to fish.</td>
</tr>
<tr>
<td>8</td>
<td>Ecotourism</td>
<td>Ecotourism</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The Udege are developing an ecotourism infrastructure. The construction of a lodge and a banja (i.e. typical Russian sauna) near Krasny Yar was finished in 2010.</td>
</tr>
</tbody>
</table>

Source: Zvydonna, 2010

Figure 22: NTFPs Used by the Udege

**Infrastructure Development.** Apart from the above outlined ecological aspects, the project envisages the implementation of several infrastructure development activities improving the Tiger Community’s livelihood. These comprise:

- Development of ecotourism infrastructure
- Development of internet infrastructure
- Development of a high quality radio station
- Modernization of power generation infrastructure, replacement of old diesel generators by new diesel generators reducing fuel consumption by approx. 40%.
- Hiring of additional teachers for the school in Krasny Yar. Currently a teacher has to cover 3-4 subjects. Hiring additional teachers shall allow for a higher specialization of teachers improving the overall quality of education.

As the Bikin’s ecological beauty and the Udege’s cultural uniqueness are not widely known, ecotourism is difficult to develop. Below figures of the recently completed lodges are presented:

**Figure 23: Ecotourism Infrastructure**

![Lodges](image)

Source: M. Burian / E. Lepeshkin

**Summary.** Based on above findings the following summary was developed:

<table>
<thead>
<tr>
<th>No.</th>
<th>Without Project</th>
<th>With Project</th>
<th>Net Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Large scale logging will decrease Korean Pine populations and hence the availability of KPN. Hence the Udege would harvest less KPN.</td>
<td>The protection of the NHZ will ensure the conservation of Korean Pine stands and the availability KPN. Hence the Udege will be enabled to collect KPN in un-altered manner/volumes.</td>
<td>Positive</td>
</tr>
<tr>
<td>2</td>
<td>Large scale logging of the concession will decrease the availability of NTFP services 2-5 above. The Udege could make less use of these NFTPs.</td>
<td>The conservation of the NHZ will ensure the availability of these NFTPs in un-altered manner/volumes. The Udege will be enabled to make use of these NFTPs.</td>
<td>Positive</td>
</tr>
<tr>
<td>3</td>
<td>Large scale logging may in the short term increase deer populations, but in the long term the number of animals will decrease. Hence the Udege will have less meat and fewer furs.</td>
<td>The protection of the concession will ensure the availability of deer and furs in the future – having a positive impact on the community.</td>
<td>Positive</td>
</tr>
<tr>
<td>4</td>
<td>As coniferous forests have a strong water regulatory function, the logging of the concession would negatively impact the water regime and fish populations. This would have a negative impact on the Udege.</td>
<td>The conservation of the NHZ will ensure an intact water regime and hence will keep fish populations at high levels. This will have a positive impact on the Udege.</td>
<td>Positive</td>
</tr>
<tr>
<td>5</td>
<td>The development of ecotourism in the</td>
<td>The protection of the NHZ will ensure</td>
<td>Positive</td>
</tr>
</tbody>
</table>
Bikin region will strongly depend on an intact (i.e. unlogged) Bikin river valley. Logging will decrease the region’s attractiveness and will reduce the revenues that Udege can make from ecotourism.

Large scale logging will massively damage the Bikin forest and the tiger population – both of which play a crucial role in the Udege’s traditional livelihoods and beliefs. The degradation of the ecosystem would have a deteriorating effect on the lifestyle and self-conception of the Udege.

The protection of the Bikin forest will enable the Udege to preserve their traditional way of life in natural, cultural and spiritual terms.

**Conclusion.** As can be seen from the table above, it is anticipated that the project results in positive community impacts.

**CM1.2** Demonstrate that no High Conservation Values identified in G1.8.4-6 will be negatively affected by the project.

Following sections G1.8.4-6, the following HCVs, a) Korean Pine stands are identified as having a critical ecosystem function, b) the project area’s forests, especially the coniferous forests have an important water regulatory function and c) the Korean Pine nuts are considered as a relevant income source for the Udege. As the projects’ major objective is the protection of those, none of these HCVs will be negatively affected by the project activity.

**Conclusion.** It is concluded that none of the identified HCVs will be negatively affected by the project activity.

**CM2. Offsite Stakeholder Impacts**

**CM2.1** Identify any potential negative offsite stakeholder impacts that the project activities are likely to cause.

**Negative Offsite Impacts.** Loggers may be negatively affected by the project. As no logging may occur on the project area, logging companies can not engage in the region and loggers cannot be employed for wood harvesting. Local temporary employment may be negatively affected by the conservation activity.

**CM2.2** Describe how the project plans to mitigate these negative offsite social and economic impacts.

**Positive Mitigation Activities.** The project comprises a range of activities that will create local employment. These comprise:

- The project will create local permanent employment (12 positions) by financing anti-poaching activities.
The project will finance research activities investigating fauna and flora populations and monitoring the size of selected species. This will create employment and it will foster the understanding of the Bikin’s unique ecosystem.

The project will pay for fire protection activities by the Primorsky forest department. This includes regular control flights by Helicopter and the eventual engagement of paratroopers for fire fighting. This will contribute to the local employment. According to the Tiger Community's contract with the forest department.

Below image shows a WWF’s head of anti-poaching activities in the Bikin NHZ at a control trip at Bikin river.

**Figure 24: Control Trip at Bikin River**

CM2.3 Demonstrate that the project is not likely to result in net negative impacts on the well-being of other stakeholder groups.

Considering the negative offsite impact outlined in CM2.1 and the positive mitigation activities outlined in CM2.2, it is concluded that the project will not have an overall negative impact on local employment.
CM.3 Community Impact Monitoring

CM3.1 Develop an initial plan for selecting community variables to be monitored and the frequency of monitoring and reporting to ensure that monitoring variables are directly linked to the project’s community development objectives and to anticipated impacts (positive and negative).

WWF Amur is permanently working with the Tiger Community on the project implementation. This comprises permanent WWF staff in Krasny Yar and frequent visits of the WWF Amur project manager from Vladivostok. WWF Amur will assist the Tiger Community in the conduction of the monitoring activities. The project will monitor the following parameters:

<table>
<thead>
<tr>
<th>Activity</th>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>TC’s KPN Harvest</td>
<td>KPN</td>
<td>The amount of Korean pine nuts collected per annum will be documented.</td>
</tr>
<tr>
<td></td>
<td>(in t/yr)</td>
<td></td>
</tr>
<tr>
<td>Ecotourism</td>
<td>Nights</td>
<td>The total amount of overnight stays in the premises of the eco-lodge will be documented.</td>
</tr>
<tr>
<td></td>
<td>(in d/yr)</td>
<td></td>
</tr>
<tr>
<td>Infrastructure Development</td>
<td>Expenditures</td>
<td>Annual expenditures in infrastructure development will be documented (detailed list is provided in section CM1.1 above)</td>
</tr>
<tr>
<td></td>
<td>(in €/yr)</td>
<td></td>
</tr>
<tr>
<td>Fire Protection</td>
<td>Expenditures</td>
<td>Annual payments to the Primorsky Forest Department will be documented.</td>
</tr>
<tr>
<td></td>
<td>(in €/yr)</td>
<td></td>
</tr>
<tr>
<td>Anti-Poaching</td>
<td>Expenditures</td>
<td>Annual anti-poaching expenditures will be documented.</td>
</tr>
<tr>
<td></td>
<td>(in €/yr)</td>
<td></td>
</tr>
</tbody>
</table>

**Standard Operating Procedures.** The following SOPs are envisaged:

- The KPN harvest data shall be collected based on the total annual KPN sales volumes of TCT.
- The amount of overnight stays (i.e. per person) shall be collected from the Eco-lodge located in Krasny Yar.
- Expenditures on infrastructure development will be aggregated based on the financial expenditures along the project’s ‘social investment plan’ as agreed upon with the Ministry for Economy and Trade (MEDT).
- The fire protection expenditures shall be determinate based on the annual financial expenditures of the project to the forest department of Primorsky krai for this specific purpose (i.e. excluding the lease fee for the concession).
- Anti poaching expenditures shall be gathered based on TCT’s annual expenses for this activity.
- All data shall be collected on an annual basis, once the project is registered under JI.
- The data shall be gathered by WWF Russia, Amur Branch and shall be stored in electronic version at the WWF office.

Based on the above discussion of positive and negative project impacts, it is envisaged that the conduction of the monitoring protocol presented in Table 16 will allow for the appropriate monitoring of project impacts.

CM3.2 Develop an initial plan for how they will assess the effectiveness of measures used to maintain or enhance High Conservation Values related to community well-being (G1.8.4-6) present in the project zone.
Sections G1.8.4-6 identifies the following High Conservation Values related to community well-being:

- Korean Pine Stands as a source for harvesting KPN (Section B1.8.4),
- Watershed regulatory functions for flood protection (Section B1.8.4)
- KPN harvesting as an important source of NTFP income ((Section B1.8.5)
- Religious nature sanctuaries located in the project area (Section B1.8.6)

All of these functions are related to the integrity of the project area as forest stands. As such, the project shall measure the effectiveness of the project activities by demonstrating the intactness of forest stands. This shall be accomplished by conducting the monitoring procedures identified under Section B3.2. Please refer to this specific section for more details on the overall approach, SOPs and Quality Assurance / Quality Control (QA/QC) procedures.

CM3.3 Commit to developing a full monitoring plan within six months of the project start date or within twelve months of validation against the Standards and to disseminate this plan and the results of monitoring, ensuring that they are made publicly available on the internet and are communicated to the communities and other stakeholders.

The monitoring plans laid out in Section CM3.1 and Section CM3.2 are considered as full monitoring plans. They will be webhosted on the CCBA website through the publication of the final CCB documentation of the proposed project. Additionally, the monitoring plan will be made available to local population by presenting the monitoring plans to the mayor of Krasny Yar and the head of TCT.
## Biodiversity Section

### B1. Net Positive Biodiversity Impacts

B1.1 Use appropriate methodologies to estimate changes in biodiversity as a result of the project in the project zone and in the project lifetime. This estimate must be based on clearly defined and defendable assumptions. The 'with project' scenario should then be compared with the baseline 'without project' biodiversity scenario completed in G2. The difference (i.e., the net biodiversity benefit) must be positive.

The methodology applied is based on:
- Askenov et al., 2006, Mapping High Conservation Value Forests of Primosky Kray, Russian Far East
- Groom et al., 2006, Principles of Conservation Biology, Third Edition in general and the ‘Hierarchical Indicators for Monitoring Biodiversity (Essay 2.1, Table A) in specific.

Over the last twenty years WWF has been conducting fauna and flora surveys within the Bikin nut-harvesting zone. Species-indicators have been used to estimate changes, which occur in the region as a result of anthropogenic pressure. The research has shown that not many changes took place during the last two decades. The main danger, which becomes more widespread in the Northern part of the Primorsky Krai is large scale logging. The most negative effect here is the harm to biodiversity. Moreover, in the course of logging, forest fires occur more often than they usually do.
- As indicators those species are used, which react on environmental changes rapidly and distinctly: Amur tiger, crane, eagle, and some fish species – rare species dependent on integrity of the environment they live in. If any changes in the “food chain” appear, the population of these species-indicators (which are on the top of this “chain”) changes as well.
- Fauna survey is being conducted regularly by Vladimir Aramilev, Pacific Ocean Institute. According to his observations, the Tiger lives in broadleaf-pine stands and is very dependent on game quantity – especially wild boar and red deer. If forests are being degraded (as a result of logging) the number of ungulates – feed animals – will decrease. Logging will also cause road construction that will disturb animals and will open the forest up to hunters.
- An immediate, positive effect of logging is that it causes a lot of fresh and young branches to grow from young trees and shrubs as food for ungulates. But this is correct only for a short period of time and only for the red deer. The main food for the Tiger is the wild boar, which does not act like the red deer – it needs pine nuts, and it’s impossible to find them on clear cuts. There’s a strict dependence: no nuts - no boar, in that case the boar migrates. As a result a decrease of Tiger food resources takes place and a decrease of the Tiger population.
- Flora surveys consisted of forest inventories and High Conservation Value Forests detection. A forest inventory has been done in 2000-2001 and the HCVF detection has been made during the last decade. Flora survey showed that about 65% are Korean pine/mixed broad leaf stands.

Below picture shows the HCVF in parts of the Primorsky Krai. The project region is clearly outlined as High Conservation Value Forest.
**Table 17: Summary of Biodiversity Project Impacts**

<table>
<thead>
<tr>
<th>No.</th>
<th>Without Project</th>
<th>With Project</th>
<th>Net Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Large scale logging of NHZs will lead to a decrease of forest dependent species and forest degradation. Unique habitats and nature systems in its entirety will be lost for the planet.</td>
<td>Only intermediate thinning will be allowed in the NHZ, moreover cedar trees won’t be cut if not necessary. The diversity of species will stay the same or will even increase.</td>
<td>Positive</td>
</tr>
<tr>
<td>2</td>
<td>The main feature of a virgin forest will be destroyed – patched forests will be razed to a one-level forest which won’t be as stable and resilient as a primary forest and will not be able to feed up the majority of wild life species.</td>
<td>Patched structure of the forest forms lots of habitat types and livelihood conditions which has a positive effect on the breeding and survival of forest-dependent species.</td>
<td>Positive</td>
</tr>
<tr>
<td>3</td>
<td>Populations of threatened flora and fauna species continue to decline.</td>
<td>The habitats of threatened species will remain untouched, which will help them to breed and to increase their population.</td>
<td>Positive</td>
</tr>
<tr>
<td>4</td>
<td>Road construction would take place which would cause forest fires, poaching, wild-life disturbance, threatened and common species migration, etc.</td>
<td>The project will forbid any road construction activity.</td>
<td>Positive</td>
</tr>
<tr>
<td>5</td>
<td>The livelihood of the Udege will be disturbed. Hunting will decrease due to alien hunters (including poaching) and due to wild-life habitats loss. Fish catch will decrease because of sinking water levels (due to logging) and Korean pine nut yields will reduce (due to logging).</td>
<td>The project will leave the territory untouched, forest unlogged, and therefore the native population of Udege people will have a possibility to survive.</td>
<td>Positive</td>
</tr>
</tbody>
</table>
B1.2 Demonstrate that no High Conservation Values identified in G1.8.1-3 will be negatively affected by the project.

The Project is designed to save the biggest and the last massive of Ussury taiga in its natural condition as a virgin primary forest which is a home for several threatened species. Majority of the endemic and threatened species of fauna are forest-dependent species as presented in Table and Table 6. Therefore the project will only have a positive impact on these species and it is not anticipated or expected that there will be any negative impacts.

None of these High Conservation Values will be negatively affected by the project activity, i.e. the conservation of Bikinskaya NHZ.

a) **Globally, Regionally or Nationally significant Concentration of Biodiversity Values**
   - **Protected Areas**: The main activity planned in the Project is to establish a protected area, which will be saved to stay untouched;
   - **Threatened Species**: The Project aims to conserve the Bikin NHZ as a breeding ground for several threatened species in order to save them and to help these species to increase their population;
   - **Endemic Species**: As no activity (forest management, logging operation, road constructions, etc.) will take place within the Project area, endemic species won’t be disturbed either (e.g. Panthera tigris – the major endemic species of East Asia);
   - **Areas that support significant Concentrations of a Species**: The Bikin river and Bikin forests are unique places for breeding of rare species, which concentrate here during some time in their lifecycle. The Project will keep these places untouched and these species undisturbed.

b) **Globally, Regionally or Nationally significant large Landscape-Level Areas**. The Project area is unique and one of its kind. The Project aims to save important populations of species and to help them to regenerate their population through the conservation of the Bikin NHZ forest massive.

c) **Threatened or rare Ecosystems**: The Bikin forest is a threatened ecosystem itself. It is the last untouched area of Ussury taiga on the planet. The Project is designed to save it.

B1.3 Identify all species to be used by the project and show that no known invasive species will be introduced into any area affected by the project and that the population of any invasive species will not increase as a result of the project.

**Fauna.** The local community will use 15 species for hunting. These are: Manchurian deer, wild boar, roe deer, musk deer, brown bear, Himalayan bear, sable, otter, bobcat, Siberian weasel, mink, mountain hare, squirrel, hazel-grouse.

**Flora.** The local community will be encouraged to use:
- 5-7 species for collecting fuel wood solely for their domestic purposes (including spruce, birch, poplar, oak, larch, fir).
- 3 species for the building of huts (only domestic purposes) (these are: spruce, larch, korean pine).
- Korean Pine nut harvesting (domestic and commercial purposes)
- Ferns (commercial harvesting)

**Conclusion.** The project activity does not comprise active reforestation and/or re-vegetation. Hence no invasive species can/will be introduced.
B1.4 Describe possible adverse effects of non-native species used by the project on the region’s environment, including impacts on native species and disease introduction or facilitation. Project proponents must justify any use of non-native species over native species.

_Not applicable._ The project activity will not use any non-native species. It aims at the preservation of the intact ecological status of the Bikin NHZ.

B1.5 Guarantee that no GMOs will be used to generate GHG emissions reductions or removals.

The project proponent and the Udege guarantee that no GMOs will be used by the project to generate GHG emissions reductions or removals.

**B 2. Offsite Biodiversity Impacts**

B2.1 Identify potential negative offsite biodiversity impacts that the project is likely to cause.

**Negative Effects.** The Project may have small negative aspects due to fishing/eco-tourism. It has become increasingly popular to come to the Bikin river for fishing trips. On the one hand these tourists are welcome, as they create alternative income sources for the local population. On the other hand, this may lead to a decrease of fishing populations.

**Positive Effects.** It is envisaged that the project results in positive offsite effects. If the Bikin concession is not developed, then there will be less road construction in the region and also the neighboring forest sites will be partially less developed (e.g. logging, hunting) than with commercial exploitation of the Bikin.

B2.2 Document how the project plans to mitigate these negative offsite biodiversity impacts.

**Mitigation of Negative Offsite Impacts.** The project will inform the eco-tourists on endangered fishes and will request the tourists not to fish endangered species.

- The project shall make handouts available at the eco-lodge in Krasny Yar. This handout shall inform, which fish may be fished and which species are protected.
- Additionally, the project engages currently 12 anti-poaching guards. For these guards, the Bikin river is the main transport route during spring, summer and autumn (which is also the timer period where fishing is possible). The anti-poaching guards shall advise the fishermen on the Bikin river on which species may be fished, and which species are protected.

It is envisaged, that this approach allows for mitigating the negative effects of increased fishing activities.

B2.3 Evaluate likely unmitigated negative offsite biodiversity impacts against the biodiversity benefits of the project within the project boundaries. Justify and demonstrate that the net effect of the project on biodiversity is positive.

_Not applicable._ Tribal Commune Tiger does not envisage any likely unmitigated adverse biodiversity impacts.
B3. Biodiversity Impact Monitoring

B3.1 Develop an initial plan for selecting biodiversity variables to be monitored and the frequency of monitoring and reporting to ensure that monitoring variables are directly linked to the project’s biodiversity objectives and to anticipated impacts (positive and negative).

Among all possible local species, the Amur Tiger was selected as the most appropriate indicator, being on top of the food chain. The tiger population is directly linked to the project’s biodiversity objectives and impacts because tigers prey on ungulates which in turn are largely dependent upon the abundance of the Korean Pine trees and their nuts.

General Information. The Russian Federation established a state monitoring system to monitor the Amur tiger population. The monitoring system covers an area of 156,571 km² which is the total suitable area of the Amur tiger habitat. In total, the system covers 16 sample plots over the Primorsky and Khabarovsk Krais. These sample plots are monitored for traces if the Amur tiger which allows to estimate its overall population. This monitoring started in 1997, is carried out annually ever since and covers a total of 16 sample plots. The project monitoring system is part of the tiger monitoring system of the Russian Federation.

Project Monitoring Approach. One of the 16 sample plots is located in the project area. Initially, this plot located covered 1,027 km² with a total length of all routes of 205 kilometers. But the “Methodological recommendations on implementation and organization of tiger census in the Russian Federation”¹ propose larger sample plots. Consequently, during the 2010 monitoring, it was decided to increase the sample plot size in the future to 2,000 km² and to 350 km of monitoring routes. This sample plot will cover 43% of the project area. The monitoring expert of WWF Russia, Amur Branch states that this is sufficient for determining the tiger population in the project area. Even though the project monitoring is part of the bigger tiger monitoring system of the Russian Federation, the monitoring results in details on the tiger population and its development specifically for the project area.

Intervals. Biodiversity (esp. Tiger) monitoring of the Bikin river basin is expected to as an early warning system that can be an indicator of significant changes primarily to tiger population within the project area. Large-scale studies are normally conducted over long time intervals and do not allow timely and prompt measures against population size decline. Therefore, surveys should be taken on an annual basis in order to ensure a stable information flow, which allows to assess project activities. In the final analysis, tiger population size or at least trends of it have been chosen as an adequate basis for efficiency evaluation of the project.

Methodology of Tiger Accounting. The tiger monitoring on the project site will be based on the regional tiger monitoring approach. Planned surveys are expediently carried out in two stages. The first stage will be conducted in January, followed by a second stage February. This approach follows the principle of ‘simultaneous actions’, i.e. the routes are processed as quickly as possible and is considered being good practice.

First and second stages are conducted following the same methodology: For each plot 14 to 48 permanent monitoring routes are established (depending on the plot). The monitoring shall have a density of 1.5 km of route per 10 km². The routes have to be surveyed during a winter (1st and 2nd stages). Routes are to be observed not earlier than 3 days after snowfalls and with snow layer thicker than 5 cm. Each tiger track must be observed and recorded. It is required to mark the track’s co-ordinates, and makes measurements of a pad of front paw. For the measurement it is advisable to use tracks where pads of front and hind paws are not superposing. Only if it is not possible to find such a situation, superposed tracks may be used. Independently of what kind of

¹ Order Nr. 63, Ministry of Natural Resources, dated at 15th March 2005.
tracks are measured, it is required to measure 5 good (sharp) tracks, and record an average value in the table. In the table, other parameters are also recorded, such as: the type of surface where tracks were found, time remoteness of tracks, if possible: gender, age (adult, young or cub), and thickness of snow layer.

As a result of the monitoring, information about density of the traces of Amur tiger and its population size within the project area will be obtained. In addition, data on tracking the activity of ungulates (red deer, roe deer, wild boar and moose) will be collected.

Key prey species of Amur Tiger will be assessed at least every three years by using a method of ungulates’ accounting at sample plots. The total area of the sample plots should not be less than 15% of the suitable habitats of the assessed species, and should not be less than 1,000 – 1,200 ha. The sample plots shall be permanent. The routes shall be rectilinear and be at a distance of no more than 500 m from each other. Average route length should be no less than 5 km. The routes are to be observed in 2 steps: during the 1st step all old tracks have to be erased and during the 2nd step the new tracks have to be accounted. An accountant records the species of ungulates and the direction of their movements.

**Standard Operating Procedures.** The monitoring will follow the following SOPs:
- A team of biodiversity experts will conduct the monitoring. The name of the persons will be documented in the monitoring report.
- The monitoring will be conducted during wintertime which allows counting the number of tracks.
- Each team member will document the number of traces sighted in a table and the location/nr of the sample plot.
- The table will be submitted to the team leader who aggregates the data from all team members.
- Based on the aggregated data, the team leader will compile a monitoring report. This report shall estimate the total tiger population in the Bikin NHZ.
- Monitoring will be conducted at least in three year intervals.
- The corresponding report will be stored at the office of WWF Amur in electronic and paper versions.
- The tiger monitoring data for the project area will be provided to the Wildlife and Game department of Primorye in order to be integrated into the regional tiger monitoring approach.

**Quality Assurance and Quality Control.** The following QA/QC procedures are envisaged:
- The survey shall be conducted by highly qualified institutions and personnel e.g. the Pacific Institute of Geography FEB RAS (Far Eastern Branch of Russian Academy of Science) under direct coordination of PhD Seredkin (or another person upon agreement).
- The monitoring shall be conducted under state control. State control will be represented by a specially authorized body under jurisdiction of the Subject of Russia Federation, e.g. the Wildlife and Game Management Department of Primorsky Krai.

**B3.2 Develop an initial plan for assessing the effectiveness of measures used to maintain or enhance High Conservation Values related to globally, regionally or nationally significant biodiversity (G1.8.1-3) present in the project zone.**

**Monitoring the Integrity of Forest Areas.** Sections G1.8.1-3 refer to the ecosystem being a Nut Harvesting Zone. The NHZ is classified as HCV area in the Russian Forest Codex. The effectiveness of the project measures will be assessed by monitoring the integrity of the forest area as such. This assessment will be based on the monitoring approach of the JI project.

**Monitoring Approach.** The project participant shall monitor the integrity of the forest area in a two-phased approach:
Step 1 focuses on the detection of forest road infrastructure development. This allows identifying the area where logging potentially may occur. This shall be based on comparing winter images with a minimum resolution of 10m. Images should have a cloud cover ratio of below 20%, pictures shall be taken in a time period of 5 months or less. The analysis shall have a minimum accuracy of 85% (i.e. with respect to infrastructure development).

Step 2 shall investigate those areas where logging potentially may occur. If illegal logging is detected, the team will determine the GPS points of the illegal logging area, the volume of illegal logging and will write a report comprising the location and volume. This information shall be documented in written and stored by TCT, each a small report. Based on this documentation, the annual volume of illegal logging will be determined. All site specific reports shall be aggregated to one illegal logging report covering the project area.

The volume will be determined following the standard procedure of volume determination by stamp. This implies the following steps:
- All tree stumps at the project site shall be identified and quantity of felled trees by species shall be recorded at special blank.
- Determination of the tree species based on the evaluation of the tree stump.
- Measurement of the diameter of the tree stump.
- Finding a DBH by using tables.
- Estimation of height of Trees is carrying out by following method: Usually illegal loggers only take most valuable piece of stem, and left the rest parts on cutting site, this can help to estimate approximate height, (it is advisable to estimate several stems). In addition to previously estimated height - measurement of neighboring trees shall be done.
- Based on the diameters, trees height and quantity of felled trees by species, the removed volume can be calculated with use of the volume tables.

**Standardized Operating Procedures.** The following SOPs shall be applied:
- The WWF will either conduct or contract a remote sensing analysis for determining development of forest infrastructure. This shall be based on comparing winter to spring images with a minimum resolution of 10m. Images should have a cloud cover ratio of below 20%. Pictures shall be taken in a time period of 5 months or less. The analysis shall have a minimum accuracy of 85% (i.e. with respect to infrastructure development). The analysis shall be conducted at least once for each CCB verification.
- If additional forest infrastructure (not registered by previous raids of anti-poaching brigades) will be determined than the additional field work will be conducted in second phase.
- The second phase will include verifying detected infrastructure development in the field: WWF together with TCT brigade (or/and contracted forest specialists) will conduct field work for verifying all illegal logging, which were not registered by previous raids or by reports of Forest department and Police. Location, size, volume should be collected and reported.
- The report shall be stored in digital at the office of WWF Russia, Russia, Amur Branch.

**Quality Assurance and Quality Control.** The following QA/QC procedures shall be applied:
- The WWF will either conduct or contract a remote sensing analysis for determining development of forest infrastructure. This shall be based on comparing winter to spring images with a minimum resolution of 10m. Images should have a cloud cover ratio of below 20%. Pictures shall be taken in a time period of 5 months or less. The analysis shall have a minimum accuracy of 85% (i.e. with respect to infrastructure development). The analysis shall be conducted at least once for each CCB verification.
- If additional forest infrastructure (not registered by previous raids of anti-poaching brigades) will be determined than the additional field work will be conducted in second phase.
- The second phase will include verifying detected infrastructure development in the field: WWF together with TCT brigade (or/and contracted forest specialists) will con-
duct field work for verifying all illegal logging, which were not registered by previous raids or by reports of Forest department and Police. Location, size, volume should be collected and reported.

B3.3 Commit to developing a full monitoring plan within six months of the project start date or within twelve months of validation against the Standards and to disseminate this plan and the results of monitoring, ensuring that they are made publicly available on the internet and are communicated to the communities and other stakeholders.

The monitoring plans laid out in Section B3.1 and Section B3.2 are considered as full monitoring plans. They will be webhosted on the CCBA website through the publication of the final CCB documentation of the proposed project. Additionally, the monitoring plan will be made available to local population by presenting the monitoring plans to the mayor of Krasny Yar and the head of TCT.
GOLD LEVEL SECTION

GL 3. Exceptional Biodiversity Benefits

Following the CCB Standard, Land Use Change projects may apply for the Gold Criterion, if they prove having at least one of the below benefits:

- Climate Change Adaptation Benefits
- Exceptional Community Benefits
- Exceptional Biodiversity Benefits

From the three above options, the proposed project chose to demonstrate exceptional biodiversity benefits. The strong contribution to community development is an important objective of the proposed project and this aim is inherently connected to the project approach. Still, the project’s major objective is related to nature conservation and biodiversity issues. Hence, the project proponent opts to demonstrate exceptional biodiversity benefits.

Exceptional biodiversity benefits may be demonstrated by:

- Vulnerability Criterion or
- Irreplaceability Criterion

The project proponent deems to be able to prove to meet the irreplaceability criterion (the total Amur Tiger population is estimated to 450 animals whereof it is estimated that 30 - 35 are living in the project area). Still the project proponent opts to follow the vulnerability criterion. This allows not only discussing the population and its development but also to present its general characteristics and its main threats.

GL3.1 Vulnerability - Critically Endangered (CR) and Endangered (EN) species - presence of at least a single individual;

According to the CCB vulnerability criteria, a globally threatened species (i.e. according to the IUCN Red List) shall occur in the project area. Following the information provided in Section G.1.8.1, the project area hosts:

- Three vulnerable species (Musk deer, Asian black bear, Hooded Crane)
- Five endangered species (Amur Tiger, Blakiston's Fish-owl, Far East Stork, Baer's Pochard, Chinese Merganser)
From all of the above, the Amur Tiger was selected to meet the CCB vulnerability criteria.

**General Characteristics.** The Siberian or Amur tiger (*Panthera tigris altaica*) is one of the 5 tiger subspecies that has survived in the wild until today, and the largest tiger in the world. Adult tigers may reach a weight of 180 to 300kg and an impressive length of up to 300cm.

Key habitats for the Amur tiger are Korean Pine broadleaf forest sites with a complex tree composition and structure.

Its major prey species are red deer, wild boar, roe deer, Manchurian moose and musk deer. Eventually tigers may also hunt brown bears, especially when the ungulate population decreases.

**Population Dynamics.** In the 1940s the Amur tiger was on the brink of extinction, with no more than 40 individuals remaining in the wild.

Thanks to vigorous anti-poaching and other conservation efforts in Russia with support from many partners, including WWF, the Amur tiger population recovered and has remained stable at around 450 individuals since about a decade. The population dynamics from 1965 up to 2009 is presented in the below figure.

Up to 2010 the Amur tiger was listed as ‘Critically Endangered species in the IUCN Red List of Threatened Species. Due to the recent increase of the population it is now listed as ‘Endangered Species’8.

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8 Please refer to IUCN Red List for more details. [http://www.iucnredlist.org/apps/redlist/details/15956/0](http://www.iucnredlist.org/apps/redlist/details/15956/0)
Distribution. Formerly the Amur tiger populated a huge area ranging from the Sea of Japan to the borders of today’s Mongolia and far south to North Korea and China. Today the geographical range of Amur tigers in the Russian Far East stretches south to north for almost 1,000 km throughout the length of Primorye and into southern Khabarovsk Krai east and south of the Amur River. They also occur within the Eastern Manchurian mountain system, which crosses into Russia from China at several places in southwest Primorye. In both regions, peaks are generally 500 to 800 m above sea level, with only a few reaching 1,000 m or more. It is unclear whether any Amur tigers survived in North Korea. The below map illustrates the historic and current range of the Amur tiger.
Main Threats. The Amur tiger faces direct and indirect threats:

- Tigers are directly threatened by poaching to meet the demand for tiger parts for use in Traditional Chinese Medicine.
- The most significant long-term threat to Amur tigers is probably the loss of habitat and the related decrease in prey due to human population pressure. Logging operations, forest fires, the development of new agricultural areas and the construction of roads destroy the livelihood of the Amur tiger and its prey.

These above listed issues are considered as the main threats to the survival of this subspecies.

Conclusion. The proposed project will conserve a unique ecosystem. The project features a share of 43.9% of dominant Korean Pine stands. These mixed broadleaf forests are the major habitat of the Amur tiger and its prey. Protecting the project area from logging will grant this very impressive animal an intact and untouched habitat in the very long run.
REFERENCES


Alisov B., P., 1956, *Climate of USSR*, Moscow, Russia.


Natural Heritage Protection Fund, RAS Institute of Geography, Vladivostok Bureau for Regional Outreach Campaigns, Institute for Cultural and Natural Heritage named after D.S. Likhachev, Association of Indigenous People of the North, Siberia and the Far East of the Russian Federation, WWF Amur Branch, 2010, Bikin River Valley – Proposal for Inscription on the UNESCO Cultural and Natural World Heritage List


Annex I: Tiger Community’s Potential NTFP Use

Sources of Income for the Udege. The TCT may generate a range of revenues from NTFP products if the Bikin forest remains intact. If the forest would be logged, all ecosystem services would be reduced which would have a negative impact on the tribe. The below table presents the evaluation of NTFP potentials based on the expertise of WWF, Russia, Amur Branch Experts.

<table>
<thead>
<tr>
<th>Nr.</th>
<th>Forest Products</th>
<th>Resources (in tons)</th>
<th>Potential Harvesting Volume (in tons)</th>
<th>Ways of Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Cowberry</td>
<td>30-40</td>
<td>15-20</td>
<td>Food and Medicine</td>
</tr>
<tr>
<td>2</td>
<td>Blueberry</td>
<td>30-40</td>
<td>20-25</td>
<td>Food</td>
</tr>
<tr>
<td>3</td>
<td>Cranberry</td>
<td>3-4</td>
<td>1-2</td>
<td>Food and Medicine</td>
</tr>
<tr>
<td>4</td>
<td>Actinidia</td>
<td>10-12</td>
<td>5-8</td>
<td>Food</td>
</tr>
<tr>
<td>5</td>
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<td>25-35</td>
<td>2.12</td>
<td>Food and Medicine</td>
</tr>
<tr>
<td>6</td>
<td>Wild grape</td>
<td>10-15</td>
<td>5-7</td>
<td>Food</td>
</tr>
<tr>
<td>7</td>
<td>Viburnum</td>
<td>15-20</td>
<td>10-15</td>
<td>Food</td>
</tr>
<tr>
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<td>Korean pine nut</td>
<td>500-600</td>
<td>586.1</td>
<td>Food</td>
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Source: Data provided by TCT.