Ecological Corridors:

Legal Framework for the Baekdu Daegan Mountain System (South Korea)

Katie Miller*
Kim Hyun**

Information concerning the legal instruments discussed in this case study is current as of 31 December 2009.

*  Environmental Law Programme Officer, IUCN Regional Environmental Law Programme, Asia.
**  Senior Programme Officer, IUCN Regional Protected Areas Programme, Asia.
Abstract

This case study of the Baekdu Daegan Mountain System (BDMS) in South Korea is an example of how a specific piece of legislation has been used to establish a biodiversity corridor in Asia. The BDMS is a series of mountain ranges that runs from Mt Baekdu in North Korea to Mt Jiri in South Korea—the backbone of the Korean peninsula. The mountains are high in ecological value and hold great cultural and spiritual significance, yet they are under threat from increased road, rail and especially agricultural development.

Through the Act on the Protection of the Baekdu Daegan Mountain System (BDMS Act) 2003, South Korea has taken decisive action to protect the southern part of the BDMS. The Act designates an area of 263,427 hectares, of which 86 per cent is made up of 183 protected areas existing at the time the Act entered into force, and 14 per cent consists of new buffer and core areas created to complete the corridor.

The BDMS includes 11 different types of protected areas, governed by six separate laws and under the administrative jurisdiction of three government ministries. Recognizing the importance of this national initiative, the BDMS Act prevails over all other legislation, including planning law.

This case study examines in detail the relationships among the governing laws, the management mechanisms established through the Act, and includes a summary of protected areas that have been incorporated into the BDMS. It provides insight into how such seemingly complex legal and administrative arrangements can work, through a combination of legislative design and a cultural commitment to consultation at all stages of decision making.
Contents

Acronyms and abbreviations ................................................................. 4

The Baekdu Daegan Mountain System .............................................. 5

References .............................................................................................. 13
Acronyms and abbreviations

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BDMS</td>
<td>Baekdu Daegan Mountain System</td>
</tr>
<tr>
<td>BDMS Act</td>
<td>Act on the Protection of the Baekdu Daegan Mountain System 2003</td>
</tr>
<tr>
<td>KFS</td>
<td>Korea Forest Service</td>
</tr>
<tr>
<td>KNPS</td>
<td>Korea National Parks Service</td>
</tr>
<tr>
<td>KRW</td>
<td>South Korean Won</td>
</tr>
<tr>
<td>MoE</td>
<td>Ministry of Environment</td>
</tr>
</tbody>
</table>
The Baekdu Daegan Mountain System

In Korean, ‘baekdu daegan’ means ‘white-headed great ridge and endless array of mountains without crossing valleys or streams’. The Baekdu Daegan Mountain System (BDMS) is a series of heavily forested mountain ranges that runs the entire length of the Korean peninsula, from Mt Baekdu in North Korea to Mt Jiri in South Korea (see Map 1). These mountain ranges are high in ecological value and hold great cultural and spiritual significance, yet they are under threat from increased road, rail and agricultural development.

Recognizing the importance of Baekdu Daegan and the need to take action to protect it, in December 2003 the South Korean National Assembly adopted the Act on the Protection of the Baekdu Daegan Mountain System (BDMS Act). The Act came into effect in 2005, creating along the South Korean part of the mountain range a biodiversity corridor, the BDMS.

The BDMS initiative has seen no less than three government authorities come together to manage this important national asset. The proposal originated from a non-governmental organization. The Act gives overall responsibility for the corridor to the Korea Forest Service (KFS), an agency of the Ministry for Food, Agriculture, Forestry and Fisheries. The Ministry of Environment (MoE) and the Cultural Heritage Administration of the Ministry of Tourism, Culture and Sport are also involved because they manage several protected areas within the BDMS.

The provisions of the BDMS Act require consultation between the MoE and the KFS at all stages of decision making. However, the Act’s successful implementation is due largely to what has emerged in practice as a genuine commitment by both ministries to open, frequent and timely consultation on all issues regarding management of the BDMS, whether explicitly called for in the Act or not.

The BDMS stretches over 684 km and covers an area of 263,427 hectares. It is divided into a core zone (65 per cent) and buffer zone (35 per cent), and includes 183 protected areas that make up 86 per cent of the total area of the BDMS (see Map 2). The protected areas within the BDMS are categorized into 11 different types and governed by six separate Acts (see Table 1). These protected areas existed prior to the creation of the BDMS and were included in the BDMS corridor when it was designated on 9 September 2005.

The MoE is responsible for 18 protected areas, belonging to six different categories, which make up 64 per cent of the total protected area within the BDMS. These protected areas are administered through the MoE’s line agency, the Korea National Parks Service (KNPS), as well as MoE regional offices and local governments. Seven national parks in the BDMS together comprise 56 per cent of all protected area within the corridor. They are governed by the Natural Parks Act 1980, which also applies to one provincial (do) and one county (gun) park. The Natural Environment Conservation Act 1991 applies to two ecological conservation areas, and to one wildlife specially protected area established specifically to protect Manchurian trout. In addition, there are six wildlife protection areas governed by the Wild Flora and Fauna Protection Act 2004.

---

1 In the Republic of Korea system, amendments of laws include the full text of the amended law, rather than just the amended provisions. The law as it is currently in force is identified with the year of the latest amendment, no matter what the original date of enactment.
Ecological Corridors (Baekdu Daegan, South Korea)

Map 1: Baekdu Daegan Mountain System

Source: Adapted from Korea Forest Service maps.
Map 2: Protected areas and BDMS zones

Source: Adapted from Korea Forest Service maps.
<table>
<thead>
<tr>
<th>Type of protected area</th>
<th>Number within BDMS</th>
<th>Total area within BDMS (hectares)</th>
<th>Law</th>
<th>Ministry</th>
<th>Agency or office responsible for administration</th>
</tr>
</thead>
<tbody>
<tr>
<td>National park</td>
<td>7</td>
<td>126,934</td>
<td>Natural Parks Act 1980 (as amended in 2008)</td>
<td>Environment</td>
<td>Korea National Parks Service</td>
</tr>
<tr>
<td>Provincial (do) and County (gun) park</td>
<td>2</td>
<td>777</td>
<td>Natural Parks Act 1980 (as amended in 2008)</td>
<td>Environment</td>
<td>Local government</td>
</tr>
<tr>
<td>Forest gene resources protected forest</td>
<td>44</td>
<td>8,109</td>
<td>Creation and Management of Forest Resources Act 2005 (as amended in 2008)</td>
<td>Food, Agriculture, Forestry and Fisheries</td>
<td>Korea Forest Service</td>
</tr>
<tr>
<td>Protection forest</td>
<td>15</td>
<td>1,622</td>
<td>Creation and Management of Forest Resources Act 2005 (as amended in 2008)</td>
<td>Food, Agriculture, Forestry and Fisheries</td>
<td>Korea Forest Service</td>
</tr>
<tr>
<td>Experimental forest</td>
<td>1</td>
<td>8</td>
<td>Creation and Management of Forest Resources Act 2005 (as amended in 2008)</td>
<td>Food, Agriculture, Forestry and Fisheries</td>
<td>Korea Forest Service</td>
</tr>
<tr>
<td>Natural recreation forest</td>
<td>15</td>
<td>22,468</td>
<td>Creation and Management of Forest Resources Act 2005 (as amended in 2008)</td>
<td>Food, Agriculture, Forestry and Fisheries</td>
<td>Korea Forest Service</td>
</tr>
<tr>
<td>Land-use change restricted area</td>
<td>69</td>
<td>20,254</td>
<td>Forest Land Management Act 2002 (as amended in 2009)</td>
<td>Food, Agriculture, Forestry and Fisheries</td>
<td>Korea Forest Service</td>
</tr>
<tr>
<td>Cultural property (natural monument, cultural heritage area, historical asset)</td>
<td>21</td>
<td>29,973</td>
<td>Cultural Properties Protection Act 1962 (as amended in 2008)</td>
<td>Tourism, Culture and Sport</td>
<td>Cultural Heritage Administration</td>
</tr>
<tr>
<td>TOTAL</td>
<td>183</td>
<td>227,410</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total area of BDMS</td>
<td></td>
<td>263,427</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In addition to its overall responsibility for the BDMS, the KFS is responsible for managing 23 per cent of total protected forest area in the BDMS. These protected areas are governed by two different acts. The Creation and Management of Forest Resources Act 2005\(^6\) applies to 44 forest gene resources

---

protected forests, 15 protection forests, one experimental forest and 15 natural recreation forests. The Forest Land Management Act 2002\(^7\) applies to 69 land-use change restricted areas.

The Ministry of Tourism, Culture and Sport, through the Cultural Heritage Administration, is responsible for the administration of the Cultural Properties Protection Act 1962.\(^8\) This law applies to 21 cultural heritage protection areas that comprise 13 per cent of the total protected area in the BDMS.

Since these different types of protected areas existed prior to the creation of the BDMS, they retain the zones delineated under the applicable management regime, but are also designated as core or buffer zones within the BDMS system. For example, natural parks have four types of zones: natural preservation zones, natural environment zones, service zones and habitation zones. In the case of natural parks, the natural preservation zone is part of the BDMS core zone, while the other zones are part of the BDMS buffer zone.

The various protected areas are administered by the line agencies or departments concerned, but the BDMS Act provides that all protected areas within the BDMS, whether previously existing or new, are also subject to the BDMS Act. Where there is conflict between the BDMS Act and the applicable protected area law, the BDMS Act prevails. In practice, however, wherever there is potential for conflict, it is resolved through consultation between the relevant authorities, whether required under the provisions of the Act or not.

The BDMS Act assigns shared responsibility for its implementation to the MoE and the KFS. The Act requires both agencies to cooperate in establishing principles and standards for the National Framework Plan on BDMS Protection (‘Framework Plan’). In all other areas, primary responsibility rests with one agency, but consultation with the other agency must always occur, except in the case of designation by the KFS of land to be included in the BDMS. These administrative responsibilities are shown in Table 2.

In general, the Ministry for Food, Agriculture, Forestry and Fisheries, through the KFS, has overall responsibility for the BDMS. However, the MoE and the Ministry of Tourism, Culture and Sport, through the Cultural Heritage Administration of Korea, retain responsibility for managing protected areas located within the corridor.

The MoE, through the KNPS, manages national natural parks. Through its regional offices, the MoE also manages ecological and scenery conservation areas, wildlife protection areas and wildlife specially protected areas. Provincial and county natural parks are managed by provincial and county authorities. Through the KFS, the Ministry for Food, Agriculture, Forestry and Fisheries also specifically manages forest gene resource protection forests. The Cultural Heritage Administration of the Ministry of Tourism, Culture and Sport manages cultural heritage protection areas within the BDMS.

There are ongoing discussions surrounding the future administration of wildlife protection areas and ecological and scenery conservation areas. The most likely outcome is that the KNPS will take over responsibility from the regional MoE offices. But other alternatives see the KNPS and regional MoE offices combined to form a new authority with jurisdiction over these two types of protected areas, or the responsibilities of the KNPS transferred to local government offices.

Along with national natural park management, the primary responsibility of the MoE with respect to the BDMS is to establish principles and standards for designating land to be included in the BDMS corridor.

---

\(^7\) Forest Land Management Act 2002, as amended in 2009.

## Table 2: Administrative responsibilities\(^1\)

<table>
<thead>
<tr>
<th>Korea Forest Service (primary responsibility, in consultation with MoE)</th>
<th>Ministry of Environment (primary responsibility, in consultation with KFS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Designate land to be included in the BDMS corridor, based on principles and standards for designation as advised by the MoE (Article 6.2 and 6.3) <em>(Not required to consult the MoE)</em></td>
<td>Establish principles and standards for designating land to be included in the BDMS corridor (Article 6.1)</td>
</tr>
<tr>
<td>Establish the 10-year Framework Plan 2005–15 (Article 4.2)</td>
<td>Through the KNPS, develop management plans for and manage individual national natural parks within the BDMS. Through MoE regional offices, manage ecological and scenery conservation areas and wildlife conservation areas. <em>(These MoE responsibilities are not explicitly prescribed in the BDMS Act, but have emerged in practice.)</em></td>
</tr>
<tr>
<td>Repeal or alter a protected area within the BDMS (Article 9)</td>
<td></td>
</tr>
<tr>
<td>Establish annual Implementation Plan (Article 5.1)</td>
<td></td>
</tr>
<tr>
<td>Approve development activities in the BDMS (Article 8)</td>
<td></td>
</tr>
</tbody>
</table>

\(^1\) Articles in this table refer to the BDMS Act, as amended in 2009.

16 Management planning for individual protected areas within the BDMS must be carried out in accordance with the legislation governing each type of protected area, and must also comply with principles outlined in the BDMS Framework Plan. The current Framework Plan is effective for the period 2005–15, and contains strategies to assess resources, develop restoration and rehabilitation principles and models, promote sustainable use through recreation and eco-forestry, protect cultural resources, increase economic capacity, and improve livelihoods.

17 In practice, the joint responsibility arrangements seem to be working well. The KFS and the KNPS have each assigned focal point officers who meet regularly to facilitate inter-agency cooperation and coordination on matters concerning the BDMS. While the Act does not provide a formal dispute resolution mechanism, in practice this has not presented a problem as the KFS and the MoE have managed to work through any disagreements to the satisfaction of both agencies.

18 Following adoption of the BDMS Act, a Committee on BDMS Protection was established. The purpose of this temporary Committee was to deliberate on matters relating to the establishment of the BDMS including coordination of policies, development of the Framework Plan, and designation of core and buffer zone areas. Members of the Committee were the Prime Minister; the Minister of Food, Agriculture, Forestry and Fisheries; the Minister of Environment; the Minister of the KFS; mayors and governors; and experts in forestry and environment. Having served its purpose, the Committee was disbanded in 2005 and its outstanding functions devolved to the KFS and the MoE.

19 A notable success of the BDMS initiative has been the high degree of public participation in both its formulation and implementation. The KFS is required to consult with local governments in developing the BDMS Framework Plan. This was achieved for the 2005–15 Framework Plan through a series of consultations conducted by the Committee on BDMS Protection. In addition, in 2004 and 2005 when the BDMS corridor area was being designated, over 240 consultation meetings were held with local communities, local governments, non-governmental organizations and other stakeholders.
If deemed necessary by the KFS, private land adjacent to the BDMS may be acquired by the central or local governments in the same way that private land adjacent to natural parks may be acquired by the KNPS. Between 2005 and 2008, 8,378 hectares of land was purchased for the BDMS in this manner. The price of land so acquired is determined according to the national property purchase process. The BDMS Act requires that all information concerning designation and acquisition of land to be included in the BDMS must be made publicly available. The Minister of the KFS must announce the designation of land to be included in the BDMS in the national gazette and report it to the central and provincial governments. Management plans must also be made publicly available (2009 Amendment, Article 6.5).

Since the initial consultation phase, consultation committees have been ad hoc, but frequent nonetheless. In practice, whenever land has been proposed for designation, there has been significant consultation between the ministries as well as with the public. In addition, if any local mayor or other official sees the need for consultation relating to the BDMS, they may contact the KFS, or the KNPS where an individual natural park is involved, and an appropriate committee is constituted.

Funding for the BDMS, including for research, is provided by the central government with some local government contributions. From 2006 to 2009, the three ministries together invested over 633 billion South Korean Won (KRW) in the BDMS (approximately 545.7 million US dollars or 362.9 million euros). Investment in the BDMS area has significantly increased in the last decade. KFS contributions alone increased 700 per cent between the 2001–05 and 2006–09 annual budgets, from 8 billion KRW (6.7 million dollars or 4.7 million euros) to 64 billion KRW (54.2 million dollars or 37.8 million euros).

The BDMS Act does not require any additional funding for protected areas within the BDMS, as each type of protected area is funded as provided in the applicable legislation.

The Act also provides incentives for income-generating projects for communities located within the BDMS, for example in agriculture, forestry and farming, water supply infrastructure, or facilities for environmental education and tourism (2009 Amendment, Article 11.2). These measures are prepared jointly by local mayors and the Minister of the KFS. The central government contributes 50 per cent towards such projects. During the period 2005–08, this amounted to approximately 39 billion KRW (33 million dollars or 23 million euros).

Any development within the BDMS must have the approval of the Minister of the KFS. The Act defines the BDMS as a special development protection zone, in which only specified types of development are permitted, whether in the core or buffer zone. In the core zone, permitted development includes facilities constructed for national defence or the military; essential official or public purposes (road, rail, river); environmental conservation; forest protection and forest research; protection of cultural heritage; access and use of new and renewable energy; development of mining sites (subject to conditions specified by Presidential Decree); residential livelihoods; and all subsidiary facilities necessary to support these developments.

In the buffer zone, permitted development includes facilities for national defence or the military; residential livelihoods; arborets and natural recreation forests; roads for forest management; educational and research facilities; residential and religious facilities of residents involved in agriculture and fishing; power, petroleum and gas supply; and all subsidiary facilities necessary to support these developments.

Any proposed project, even if it falls within these permitted development categories, must be approved by the KFS in consultation with the Minister of Environment. Maximum penalties for violating development prohibitions in the core zone are 7 years in prison and a fine of 50 million KRW (42,000 dollars or 28,000 euros). For a violation in the buffer zone, the maximum penalty is 5 years
To minimize violations at the community level, a community-based management and enforcement system has been established among local communities, non-governmental organizations and local and provincial authorities in the BDMS. Most protected areas already have what is called an ‘honorary park ranger’ or ‘natural resources guardian’ system, whereby local residents are hired to patrol the area and report illegal activities such as poaching or the illegal harvesting of plants and animals. This has been extended across the entire BDMS area, with a hotline direct to each local KNPS park office or KFS office.

Land may also be removed from the BDMS. The specific criteria for repealing the designation of a protected area inside the BDMS are under development but removal may occur in cases where the area is recognized to have lost its purpose of designation; it is deemed unnecessary to manage the area as a protected area due to changes in natural, social or other conditions; or adjustments between the core and buffer zones are necessary. The designation of a protected area may also be repealed in cases where the central or provincial government wishes to utilize an area within the BDMS for social development priorities that would cause its ‘purpose of designation’ to be lost.

According to the BDMS Act, the Minister of the KFS can repeal the designation of or alter a protected area within the BDMS. This contradicts provisions in protected area legislation, where this responsibility is held by other agencies and individuals. For example, under the Natural Parks Act, the power to repeal protected areas in national, provincial and county parks lies with the Minister for Environment, the Special Metropolitan City Mayor, or the Head of an Autonomous County, respectively. This clearly creates a potential source of conflict between agencies, but to date there have been no proposed repeals so this function has not yet been tested. In practice, however, any potential conflict would likely be resolved through a process of consultation and negotiation.

In the future, in cases where the designation of a protected area needs to be repealed, the KFS would like to see a legal requirement for the loss of such land to be compensated, so that when land is removed from one part of the BDMS, a similar or equal area and ecosystem or landscape is included elsewhere in the BDMS. The KNPS benefits from similar provisions with respect to national parks.

The KFS sees that the next step in ensuring the continued protection and effective management of the BDMS is to develop mechanisms to encourage increased cooperation between local, provincial and central governments. To further this objective, the KFS has been conducting workshops that bring together local and provincial governments with central government agencies, as well as with the Korea Forest Research Institute and the Korea Protected Areas Forum.
References

Legal instruments

Most legal instruments discussed in this case study are available online. Readers may view the full text on the ECOLEX web site using the hyperlinks below.

Creation and Management of Forest Resources Act 2005 (Act No. 7678), last amended in 2008 (Act No. 8852)  
LEX-FAOC093914

Act on the Protection of the Baekdu Daegan Mountain System 2003 (Act No. 7038), last amended in 2009 (Act No. 9479)  
LEX-FAOC093916

Cultural Properties Protection Act 1962 (Act No. 961), last amended in 2008 (Act No. 9116)  
LEX-FAOC093961

Wild Flora and Fauna Protection Act 2004 (Act No. 7167), last amended in 2009 (Act No. 9763)  
LEX-FAOC093962

LEX-FAOC093955

Natural Parks Act 1980 (Act No. 3243), last amended in 2008 (Act No. 9313)  
LEX-FAOC093974

Forest Land Management Act 2002 (Act No. 6841), last amended in 2009 (Act No. 9401)  
LEX-FAOC093997