

The Contribution of Forest Regulations on the Realization of Sustainable Forest Management: A Comparative Law Study of Japan and Germany

Dennis GAIN, Tsunemi WATANABE
Kochi University of Technology

ABSTRACT: The purpose of this comparative law study is to confront the Japanese Forest and Forestry Basic Act, as well as additional relevant acts in Japan, which address the preservation and protection of Japanese forestland and its multifunctional role towards ecology, economy and society, with the German National Act on Forests (Bundeswaldgesetz – BWaldG) along with the Bavarian Act on Forests (Waldgesetz für Bayern – BayWaldG). Improper forest management in Japan is being criticized by researchers worldwide. Clear-cutting and forest degradation are existent nationwide affecting surrounding ecosystems and biodiversity. The Japanese forest products industry is further losing competitiveness in the world, even to developed nations with substantially smaller forest areas and lower domestic wood consumption. Moreover, lacking awareness of the public on the importance of the ecological role of forests and forestry is of growing concern to the Japanese government. It can be agreed that the implementation of effective forest management relies on various different input factors. National policies do therefore take a fundamental role by providing instructions and guidance on how efficient forest management is to be accomplished in society. Limitations and drawbacks in the Japanese forest and biodiversity acts that have the potential to impede an effective realization of sustainable forest management (SFM) in Japan were identified and contrasted to the forest laws of Germany, a nation which is a world-leading producer and exporter of forest products and where SFM is being successfully practiced for centuries. Concrete formulations of law articles were examined to analyze their practicable execution for successful application of SFM in the respective nations. Emphasis was given on the analysis of law purpose, forest preservation, protection, promotion, supervision as well as future sustainability in account to the respective forest conditions and forest owner structures of each nation. The results suggest diverse editing of forest regulations in Japan and discuss a number of future application challenges and chances.

KEYWORDS: sustainable forest management, forest and forestry act, Germany, Japan

AIMS AND OBJECTIVES

This research study targets the assessment of three forest laws, the German national BWaldG, the Bavarian BayWaldG and the Japan Forest and Forestry Basic Act in regards to the criteria and indicators for sustainable forest management devised by Forest Europe and the Montréal Process, and the key characteristics of forest laws and policies. It

aims to identify, evaluate and discuss the level of effectiveness of contributing to sustainable forestry. To achieve this, all three forest laws are scanned for information based on the derived criteria and indicators which are then analyzed for detail and evaluated. Emphasis will be given on the detail of the expression of relevant law articles. The results will be derived and thoroughly discussed.

1. INTRODUCTION

Sustainable forestry has been a hot topic in forest management for more than 20 years. International conferences around the world have set fundamental key indicators and criteria on how effective sustainable forestry should be implemented and accomplished on a national and regional level. Intergovernmental working groups around the world provide assistance to their member states to realize sustainable forest management (FAO, 2008).

Laws, acts and policies are important parts of society in order to make sure that every person in it knows what he or she can or cannot do. In this way a society can run peacefully and efficiently. Regulations on forests and forestry share similar objectives; to balance economic, ecological and social needs and their demands on forest products and forest services. These objectives include the regulation of forest use and forest management actions such as felling, reforestation, the maintenance of a sustainable supply of wood as an industrial material and the preservation of natural functions such as biodiversity, climate conservation and pollution control.

Forests are protected by means of regulations throughout the world. However, implementation efficacy of these rules can differ greatly among nations. For effective conservation of forestland, with all its beneficial characteristics to society, it is necessary to address a large number of criteria and influencing factors that contribute to the forest ecosystem construct. Policies are made through stakeholder communication, by balancing out the needs and wants of each stakeholder. Consensus on an issue at a national level can develop into the passing of a law and must therefore be followed by every individual residing in that country to avoid prosecution. This is the point where the efficacy of forest policy can strongly fluctuate, because the formation of policy and law are generally very

different from nation to nation. Table 1 provides a comparison of the central differences of forest policy and forest law (FAO, 2010). Forest laws have an equal effect on everyone in a society and are protected by law enforcement. Violation can or will result in legal action. A policy does not possess the same legal power as a law. The efficacy of forest policy is therefore highly dependent on successful stakeholder communication, as well as successful consensus among stakeholders. Policies are not legally binding and cannot be prosecuted by legal enforcement. In an environment that is not protected by forest laws, only successful stakeholder communication and consensus can enable positive implementation of forest policies. Without it, effective forest and forestry preservation will be difficult, and is in many cases, unlikely to be achieved.

Table 1: Key differences of forest law and forest policy

Forest Law	Forest Policy
1. Legally binding	Not legally binding
2. Lists rights and duties that are based on policy vision and goals	Delivers support by indicating visions, goals and ways to achieve them
3. Explicit formulation to enable equality across jurisdiction	General formulation to enable room for adaption
4. Approved and passed by parliament or Head of State through legislation procedures	Can be approved and modified in various ways through stakeholder communication
5. Legal procedures necessary for modification	Modified by those that approved the policy
6. Violation is punished by judicial powers	Violation is not punished or only dealt with light actions

Source: Lindsay, J. M., Christy, L. C., Di Leva, C. E., & Takoukam, P. T. (2007).

Both forest law and forest policy are highly complex regulation structures; as they involve effective balancing of multiple stakeholder interest. They must address a good balance of nature conservation and the economic importance of wood as a resource material. Important factors that need to be taken into account when formulating forest regulations is international agreements on environment and trade, property rights of forest owners, indigenous cultures, genetically modified organisms as well as forest certification and labeling ([Lindsay, Christy, Di Leva, & Takoukam, 2007](#)). Due to the large amount of stake in forests and forestry, building consensus among all stakeholders is a very complex and time consuming achievement. On a national level, however, compared to forest law, a non-legally binding, inexplicitly worded forest policy, without legal enforcement, is much less effective at taking sufficient control of the large variety of forest's needs and wants.

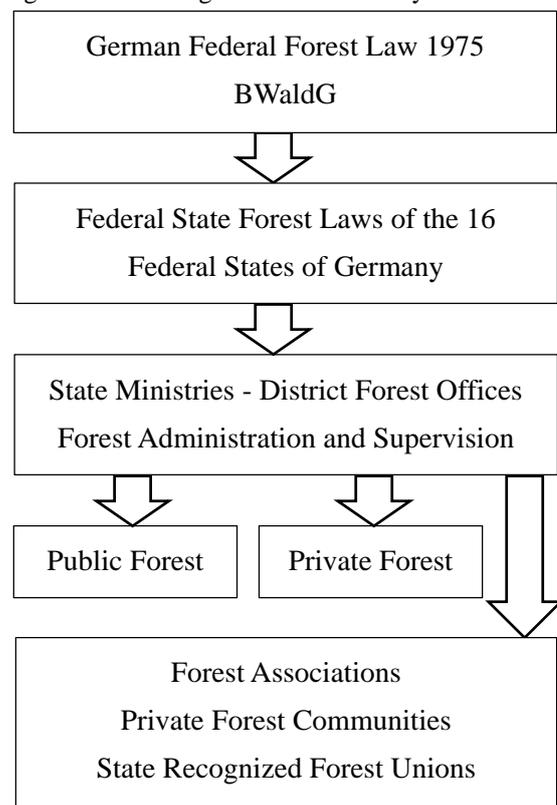
1.1 Forest legislation in Germany and Japan

Legally binding, state enforced forest policy has a long history in Germany. A quickly expanding iron, glass and mining industry in Germany in the 15th century, significantly increased the already high wood demand at that time. Forests were used by both the industry and public to deliver wood as a resource for heat energy, but also as a source of livelihood by hunters and farmers. In addition, the services of forests to provide protection from natural impacts, such as storms, ice and avalanches were also very important. In order to protect all the important forest functions for society, authority structures in Germany began to understand the importance of sustainable forest management. First actions were the rationalization of felling, criminal prosecution of illegal cutting and the implementation of reforestation strategies, to gain control of wood production and consumption ([Lohberg, 2009](#)). The

protection of forests with all the services and products that they provide became an essential part of legislations in Modern Times Germany.

Today, there is one national forest law in Germany - the German Federal Forest Law - (Bundeswaldgesetz – BWaldG) which dates from 1975 (last revised in 2010). The aims of the law are the preservation and protection of forests on a federal and federal state level (reforestation responsibility, clearing permission etc.) and the promotion of forestry for effective wood production. The law itself states general provisions which the 16 federal states of Germany are obligated to address in federal state forest regulations. It is legally binding and stands above federal state law. It does not, however, implicate law enforcement measures on the management of forest in order to avoid interference with federal state forest laws. Figure 1 demonstrates the implementation stages of forest laws on federal, federal state and regional level ([German Federal Forest Law, 1975](#)).

Figure 1: Forest legislation in Germany



On the other hand, forest legislation in Japan is more complex. There are many forestry related laws in Japan. The three major ones are the Forest Law from 1951, the Forest Owners Association Law from 1987 and the Forest and Forestry Basic Law from 1964. The main objectives of the 1951 Forest Law are the implementation of a nationwide forest planning system, to protect Japan's forests and to promote its forestry. The Forest Owners Association Law from 1987 aims to raise the socioeconomic position of forest owners and to improve processes for roundwood production. The Forest and Forestry Basic Law from 1964 aims to improve the performance of sustainable forestry by balancing the three fundamental key functions of sustainable forest management: economy, ecology and society ([Ota, 2010](#)).

1.2 The Montréal Process

The Montréal Process is the Working Group on Criteria and Indicators for the Conservation and Sustainable Management of Temperate and Boreal Forests. It is one of several other intergovernmental working groups such as Forest Europe (MCPFE), the Food and Agriculture Organization of the United Nations (FAO) and the International Tropical Timber Organization (ITTO). First starting as an initiative of the government of Canada, the Montréal Process was found in 1994 in response to the United Nations Rio Earth Summit in 1992. Japan is one of the 12 member states which together account for approximately 50% of the world's entire forest area. All 12 member countries have agreed to its criteria and indicators on sustainable forest management. The internally established Network of Knowledge enables states to share experiences, knowledge, opinions and ideas on the application of forest management. Germany is a member of Forest Europe (MCPFE). Criteria and Indicators are very similar to those of the Montréal Process and are also

leaned on those of the 1992 UN Earth Summit ([MCPI, 2009](#)).

2. METHODOLOGY

Japan is a nation that is very internationally participative to support processes towards sustainable forest management. For instance, the Liaison Office of the Montréal Process is currently hosted by Japan. The headquarters of the International Tropical Timber Organization, for which Japan is one of the main financial donors, is in Japan.

However, since Japanese forestry is still being criticized for its poor management – it has led to widely-stretched degraded forest areas, as claimed by [Matsushita, Xu, Onda, Otsuki, & Toyota \(2010\)](#) – the question arises, how effectively Japanese forest regulations – besides all of the promotion efforts and forest programs by the Japanese government – contribute to the realization of sustainable forest management within Japan. The main idea of the criteria and indicators for sustainable forest management were formed about 20 years ago, and were approved by the Japanese government. Until now, have they been implemented in national and regional forest policy? And if yes, how well?

As claimed by [Ota \(2010\)](#), the Forest and Forestry Basic Law of 1964 aims to improve the performance of sustainable forestry in Japan. In order to answer the research question how well the UN indicators and criteria for effective forest management are employed in the Japanese Forest and Forestry Basic Law of 1964, it shall be compared to the German Federal and Bavarian Forest Laws according to the criteria and indicators derived from the Montréal Process, Forest Europe and the 1992 UN Earth Summit Forest Report. German forest laws were chosen because the country's forestry industry is one of the world leaders in technology, market and innovation.

Moreover, the concept of sustainable forest management is claimed to be born in Germany ([Grober, 1999](#)). Bavaria is one of the states with the least natural resources in Germany, so unlike other federal states, forestry remained one of the most important economic sectors.

Each individual law is systematically analyzed for information regarding the derived criteria and indicators, with what detail they are being addressed within the law and whether legislation measures for law enforcement, including prosecution, are existent.

The sustainable forest management criteria and indicators were subdivided into three subgroups.

- (A) General Principles for Forests and Forestry
- (B) International SFM Criteria and Indicators
- (C) Unaddressed 1992 UN Earth Summit SFM Values

(A) General Principles for Forests and Forestry represent typical forest and forestry values including definitions for forestland, forest ownership, forest management, as well as forest conservation measures and monitoring. Subgroup (B), International SFM Criteria and Indicators, derives the norms for sustainable forest management of the Montréal Process and Forest Europe which are the working groups of the two countries that are part of this research study. These norms are based on the forest management standards released at the 1992 UN Earth Summit. Subgroup (C), Unaddressed 1992 UN Earth Summit SFM Values, lists ideals of the 1992 UN Earth Summit that were neither adopted by the Montréal Process nor Forest Europe, which are however, relevant factors with the potential to effectively contribute to sustainable forest management and are therefore, although considered of minor importance, worth addressing. Each forest law will lastly be evaluated in respect to the key differences of forest law and forest policy (Table 1).

2.1 Limitations

Japanese forest legislature is very complex on both, national and prefectural level. There are many forestry related laws in Japan. The Forest and Forestry Basic Law of 1964 explicitly targets the enhancement of the performance of sustainable forestry in Japan. However, certain management and non-management related factors of this research study may also be addressed in other Japanese forest laws. Therefore, a factor that may be unaddressed, or only briefly addressed, may appear in more detail in another law. Only the assessment of the performance of the Japanese Forest and Forestry Basic Law of 1964 (lastly revised in 2003), in contrast to the German national forest law and the Bavarian forest law, is element of this research.

Every federal state of Germany has its own forest law based on the general statutory framework of the German national forest law. Law purpose, objectives, prescriptions and legal application are very similar among each federal state and only differ on a larger scale with regards to the degree of law enforcement and the determination of the severity of legal measures; such as penalties and fines.

Japanese forest legislation, on a prefectural level, is unequal and sometimes provides little detail. Often, only a minor part of forest management; mainly the changes of the character of forest land with their administrative application is addressed. This includes the proposal for permission to the governor of each respective prefecture for clear-cutting or any other forest management action that comprises a change of forest land character. Penalties and fines differ greatly among prefectures, should they apply. General forest laws that cover all major aspects of forest management in every prefecture, such as in Germany, do not exist in Japan. Because of this inequality, prefectural regulations cannot be taken into account in this comparative forest law research study.

Table 2: BWaldG, BayWaldG and the Japanese Forest Basic Act Comparison on International SFM standards

Criteria and Indicators	Germany BWaldG	Bavaria BayWaldG	Japan Forest and Forestry Basic Act
not addressed: -			
briefly addressed: +			
addressed in detail: ++			
addressed in detail and regulated through law enforcement +++			
(A) GENERAL PRINCIPLES FOR FOREST AND FORESTRY			
Definition of forest and forest land	++	++	-
Sustainable forest use, management and development	++	++	++
Forest conservation	++	++	++
Classification of forest functions	++	+++	+
Protection of forest functions	++	+++	+
Types of forests and forest owners	++	+++	+
Forest owner rights and obligations	++	+++	++
Support for forest owners	+	+++	++
Supervision of forest and forest policy	-	+++	+
Forest monitoring	+++	+++	+++
Forest monitoring for climate preservation	+++	+++	-
(B) INTERNATIONAL SFM CRITERIA AND INDICATORS			
B1 Conservation of biological diversity			
Conservation of ecosystem diversity	-	+++	-
Conservation of species diversity	-	+++	-
Conservation of genetic diversity	-	+++	-
B2 Maintenance of productive capacity of forests			
Preservation of area and type of forest	+++	+++	++
Sustainable production of wood products	+	+++	+
Sustainable production of non-wood products	+	+	+
B3 Maintenance of forest ecosystem health and vitality			
Biotic impacts on forests	-	+++	+
Natural and human-induced abiotic impacts on forests	++	+++	++
B4 Conservation and maintenance of soil and water resources			
Protective function of forests to society	+++	+++	+
Maintenance of forest soil through proper forest management	+++	+++	+
Maintenance of aquatic systems through proper forest management	+	+++	+
B5 Maintenance of forest contribution to global carbon cycles			
Importance of forests to global carbon cycles	-	-	-
Role of forests on global climate	++	+++	+
Role of forests as a provider for renewable bio-energy	-	+++	-

B6 Maintenance and enhancement of long-term socioeconomic benefits to meet the needs of societies			
Contribution of forest products to domestic economies	+	+	++
Environmental services of forests	++	++	++
Maintaining and enhancing the socio-economic benefits of forests	++	+++	++
Importance of employment and community needs	+	+	++
Forests for recreation	+++	+++	-
Protection of cultural, social and spiritual connection to forests	+	++	+
B7 Legal, institutional and economic framework for forest conservation and sustainable management			
Importance of regulations to support SFM	+++	+++	++
Taxation and other economic strategies to support SFM	-	-	-
Programs to support SFM	-	+++	+
Research and technologies to support SFM	-	+	++
Clear land ownership information	++	++	-
Partnerships to support SFM	+++	+++	++
Public participation in conflict management	-	-	+
Report of progress on SFM	+++	+++	+++
Enforcement of forest laws	++	+++	-
Prosecution and penalties	+++	+++	-
(C) UNADDRESSED 1992 UN EARTH SUMMIT SFM VALUES			
Promotion of women in all aspects of forest management	-	-	-
Conservation and sustainable development of policies	-	-	-
Strengthen education and training on SFM	-	+++	++
Promotion of domestic forest products	-	-	++
Control of pollutants	-	-	-

3. RESULTS

The comparison of the German federal, Bavarian federal state and the Japanese Forest and Forestry Basic Act, as demonstrated in Table 2 and with regard to the preset internationally agreed sustainable forest management criteria and indicators, result in partly similar, but in certain areas also quite diverse outcomes. The German Federal Forest Law is only intended to provide general provisions for federal state forest legislation. Therefore, law article formulation detail and the number of regulated criteria and indicators is significantly lower compared to its Bavarian counterpart, where the majority of SFM criteria and indicators are addressed in rich detail of the highest order.

Table 3 displays the frequency of appearance of the criteria and indicators of each forest law in each detail category.

Table 3: Allocation of comparison results

Forest Law/detail	-	+	++	+++
BWaldG	15	7	13	10
BayWaldG	7	4	6	29
Basic Act	15	14	15	2

3.1 General Principles of Forest and Forestry

The results in this group show significant disparity in six of the eleven principles of two or more detail categories. In BWaldG, two of eleven

principles are regulated. In BayWaldG, eight of eleven principles are regulated. In the Japanese Basic Act, only one of eleven principles is regulated by legislature. The Japanese Basic Act does not include a definition of the characteristics of forest and forestland. Classifications of forest functions, protection of forest functions, description of types of forests and forest owners, the supervision of forest and forest policy are mentioned, but not addressed in detail in the Japanese Basic Law. Support for forest owners is briefly mentioned in BWaldG, whereas it is described in detail and is regulated in BayWaldG. Supervision of forest and forest policy is not mentioned in the German BWaldG, but addressed in detail and regulated in BayWaldG. Forest monitoring for climate preservation is not mentioned in the Japanese Basic Act, but addressed in detail and regulated in both German forest laws subject in this research study.

3.2 International SFM Criteria and Indicators

The results of subgroup B1 “Conservation of biological diversity” show that neither in BWaldG nor in the Japanese Basic Act the preservation of biological diversity in forests is mentioned, while it is well addressed and regulated in BayWaldG.

Subgroup B2 “Maintenance of productive capacity of forests” shows that the sustainable production of wood products is only meticulously addressed and regulated in BayWaldG, while it is just mentioned in BWaldG and the Japanese Basic Act. The sustainable production of non-wood products is only briefly referred to in all three forest laws.

The effects of biotic impacts on forests in subgroup B3 “Maintenance of forest ecosystem health and vitality” are not mentioned in the German national forest law BWaldG but are addressed in detail and are regulated in BayWaldG.

All three indicators of subgroup B4, “The conservation and maintenance of soil and water resources”, are not addressed in detail in the Japanese Basic Act.

The indicators of subgroup B5 “The maintenance of forest contribution to global carbon cycles” are only partly addressed in all three forest laws. The importance of forests to global carbon cycles is not mentioned in any of the three forest laws. The role of forests on global climate is briefly mentioned in the Japanese Basic Act. The role of forests as a provider for renewable bio-energy is only referred to and addressed in detail and regulated in the Bavarian BayWaldG forest law.

Subgroup B6 “Maintenance and enhancement of long-term socioeconomic benefits to meet the needs of societies” shows reasonably similar results among the three forest laws. The contribution of forest products to domestic economies, as well as the importance of employment and community needs, is well addressed in detail in the Japanese Basic Act, whereas, it is only briefly mentioned in both German forest laws. However, the recreation aspect of SFM is not mentioned in the Japanese Basic Act, while it is addressed in detail and regulated in both German forest laws. The Japanese Basic Act mentions in Article 2 “Fulfillment of Multifunctional Role of Forests”, the preservation of public health. However, an explicit stating of the role recreation has in SFM is missing.

Subgroup B7 “Legal, institutional and economic framework for forest conservation and sustainable management” shows a very diverse picture among the three forest laws. Taxation and other economic strategies to support SFM are not explicitly mentioned in any of the three forest laws. The Japanese Basic Act does not include a definition of the different types of forest ownership. Research and technologies to support SFM are addressed in detail in the Japanese Basic Act but are not mentioned in the German

national forest law BWaldG. Partnerships to support SFM are well addressed in detail in all three forest laws. Public participation in conflict management is briefly addressed in the Japanese Basic Act but not mentioned in BWaldG and BayWaldG. The most significant contradiction among the three forest laws is, however, law enforcement. While BWaldG and BayWaldG list actions and penalties in case of the violation of law articles, the Japanese Basic Act does not address the prosecution in the event of law violation.

3.3 Unaddressed 1992 UN Earth Summit SFM Values

The results for the selection of 1992 UN Earth Summit values for SFM, which have not been added to the criteria and indicators of the forest working groups Forest Europe and the Montréal Process, show an advantage of the Japanese Forest and Forestry Basic Act. Neither the promotion of women in all aspects of forest management, the conservation and sustainable development of forest policies, nor the control of pollutants is mentioned in any of the three forest laws. However, the strengthening of forest education and training is addressed in detail the Japanese Basic Act and regulated in BayWaldG. The promotion of domestic forest products is addressed in rich detail in the Japanese Basic Act but is not mentioned in the respective German forest laws, BWaldG and BayWaldG.

3.4 Forest Law Evaluation

All three forest laws were lastly evaluated and compared based on the key differences, as shown in Table 1, of forest law and forest policy of Lindsay, J. M., Christy, L. C., Di Leva, C. E., & Takoukam, P. T. (2007). The results are shown in Table 4. Both German forest laws, BWaldG and BayWaldG, fulfill the six conditions of a forest law as listed in Table 1.

Table 4: Forest Law Evaluation

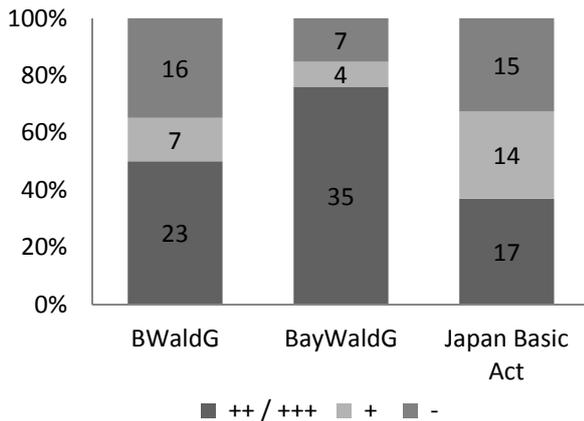
Forest law key elements	B-WaldG	Bay-WaldG	Japan Basic Act
Legally Binding	✓	✓	✓
Rights and duties on policy vision/goals	✓	✓	✓
Explicit formulation	✓	✓	X
Approved and passed by Head of State	✓	✓	✓
Legal procedures necessary for modification	✓	✓	✓
Law violation punishment	✓	✓	X

The Japanese Basic Act fails to meet all of the six conditions, missing out two elements of forest policy; “Explicit formulation” and “Law violation punishment”.

As shown in Table 3, the number of briefly formulated articles in the Japanese Forest and Forestry Basic Act, that are related to the predefined and analyzed SFM criteria and indicators, is twice as high compared to BWaldG and in comparison to BayWaldG, more than 3 times as high.

Of the 46 SFM criteria and indicators, 29 are either briefly or not mentioned in the Japanese Basic Act. 17 of the 30 criteria and indicators that are mentioned in the Basic Act are addressed in detail. On the other hand, in the Bavarian BayWaldG, only 11 of the 46 criteria and indicators are either briefly or not mentioned. 35 of the 39 criteria and indicators that are mentioned in BayWaldG, are well addressed in detail. As for BWaldG, of the 46 criteria and indicators, 30 are mentioned and half are addressed in detail. A comparison of forest law formulation detail, of the three forest laws compared, is shown in Table 5.

Table 5: Forest law formulation detail



Law violation punishment is the second forest law characteristic the Japanese Basic Act does not meet. Unlike BWaldG and BayWaldG, the enforcement of forest laws by use of prosecution and penalties, in case of law violation, is not stated within the law.

CONCLUSION AND DISCUSSION

Forest laws and policies are important instruments to facilitate, achieve and maintain sustainable forest management in order to take best advantage of the benefits that forests deliver to society. The analysis of the German forest laws BWaldG and BayWaldG as well as the Japanese Forest and Forestry Basic Act, in regards to the criteria and indicators derived from the SFM working groups, Forest Europe and the Montréal Process, has delivered clear and interesting results.

It must be noted that neither BWaldG nor the Japanese Basic Act addresses the preservation of biodiversity. Japan has a separate law, the Basic Act on Biodiversity, however, biodiversity is a significant factor in forest management and must also be thoroughly addressed in a forest law, also to decrease the likeliness of misinterpretation of relevance to the forest.

The Japanese Forest and Forestry Act is the most vaguely formulated forest law of the three that were analyzed in this research. Moreover, it does not

include any penalties and prosecution measures for law violation. It only partly meets the characteristics for a forest law, based on the suggestions by Lindsay, J. M., Christy, L. C., Di Leva, C. E., & Takoukam, P. T. (2007). In order to improve the effectiveness and implementability of the Japan Forest and Forestry Basic Act, it needs to be reformulated in order to add more detail that explicitly points out clear visions and goals, and how they are to be achieved. Also, measures for violating the law must be added in order to consider it a fully characterized forest law.

International working groups on sustainable forest management suggest criteria and indicators that need to be followed in order to enable SFM. However, none of the three analyzed forest laws addresses all criteria and indicators suggested by Forest Europe and the Montréal Process. Comparing the two German forest laws, national forest law BWaldG and state forest law BayWaldG, it can be noted that BayWaldG is formulated in greater detail containing numerous more SFM-relevant items than its national counterpart. This includes the number and detail of measures in case of law violation. However, the German national forest law BWaldG is simply providing frame conditions for forest laws on a state level and points out which factors state forest laws must include in order to be acknowledged under national law.

Interestingly, the level that both national laws, the German BWaldG and the Japanese Forest and Forestry Basic Act, address visions and goals is somewhat similar, which can be supported by the fact that the formulation detail of both laws is comparable. However, state level forest legislation is not comparable among prefectures. The Japan Ministry of Agriculture, Forestry and Fisheries does not grasp prefecture level forest legislation, and in fact this situation is very nontransparent. If Japan wants to improve nationwide forest management and lead it towards sustainability, the country should

consider making national and state level forest legislation more transparent.

Also, unlike the German forest laws, Japanese forest legislation does not address effective forest monitoring and supervision. In order to maintain healthy forests, it is crucial to regularly inspect them by trained professionals in forest management. The German public forester system has proven to be effective in monitoring and balancing the needs of ecology, economy and society on the forest, regardless of public or private. Japan has a larger and more complex forest area than Germany and supervision through foresters can support the effectiveness of forest management in Japan significantly. The implementation of a forester system could be the next significant challenge of Japanese forest legislature.

REFERENCES

- Bavarian Forest Law. (2005). *Waldgesetz für Bayern (BayWaldG)*.
- FAO. (2008). *What is sustainable forest management*. Retrieved August 30, 2013, from FAO: <http://www.fao.org/forestry/sfm/24447/en>
- FAO. (2010). *Developing effective forest policy - A guide*. Rome, Italy: Electronic Publishing Policy and Support Branch.
- Fujiwara, T. (2002). *Integration of biological diversity in new policies for forests and forestry in Japan*. Forestry and Forest Products Research Institute, Japan. Accra, Ghana: CBD/UNFF Workshop on forest and biological diversity.
- Gain, D., & Watanabe, T. (2013). Forest Management in Japan: Application Issues of Sustainable Forestry and the Potential of Improvement through Accredited Forest Certification . *Symposium on Social Management Systems*.
- German Federal Forest Law. (1975). *Bundeswaldgesetz (BWaldG)*.
- Grober, U. (1999, November 25). *The inventor of sustainability*. Retrieved July 22, 2013, from Die Zeit Online: http://www.zeit.de/1999/48/Der_Erfinder_der_Nachhaltigkeit
- Japan Forest and Forestry Basic Act. (1964).
- Lindsay, J. M., Christy, L. C., Di Leva, C. E., & Takoukam, P. T. (2007). *Forest law and sustainable development - Addressing contemporary challenges through legal reform*. Washington DC: The International Bank for Reconstruction and Development / The World Bank.
- Lohberg, R. (2009). *Geschichte der Forstwirtschaft*. Retrieved July 21, 2013, from wald.lauftext.de: <http://wald.lauftext.de/vom-wald-zum-forst/geschichte-der-forstwirtschaft/index.html>
- Matsushita, B., Xu, M., Onda, Y., Otsuki, Y., & Toyota, M. (2010). Detecting forest degradation in Kochi, Japan: ground-based measurements versus satellite (Terra/ASTER) remote sensing. *HYDROLOGICAL PROCESSES*(24), 588-595.
- MCPI. (2009). *Criteria and indicators for the conservation and sustainable management of temperate and boreal forests*. Retrieved August 28, 2013, from The Montréal Process: http://www.montrealprocess.org/documents/publications/general/2009p_4.pdf
- Ota, I. (2010). Forest law and policy developments in Japan. *Working Papers International Series Forest Policy and Forest Economics*, pp. 3-11.