# Legislation and Environmental Impact Assessment - Characteristics of the Japan Forestry Basic Act

Dennis GAIN\*

### Abstract

Interest in environmental issues and sustainability has grown over the past fifty years. Environmental Impact Assessment (EIA) is a tool usually defined as the process of identifying predicting, evaluating, and mitigating effects of development proposals before actions are taken. EIA acts as a driver for stakeholder consultation and participation. However, the effect of legislation as a stimulus to facilitate the implementation of EIA in local projects with environmental risks differs among nations and is yet to be characterized in Japan. The Japan Forestry Basic Act (JFBA) was analyzed based on the official Sustainable Forest Management (SFM) criteria and indicators of the Montreal Process (MP)<sup>1</sup> Results were characterized on a scale ranging from "not addressed" (-) to "addressed in detail and enforced by law" (+++). Criteria and indicators that are either not (-) or merely briefly (+) addressed in the FFBA were digested into a risk matrix. It was found that the maintenance and enhancement of long-term socioeconomic benefits is a well concentrated and regarded factor which has the potential to act as an aid in impact mitigation processes.

### 1. Introduction

Forests and their ecosystems are complex natural habitats whose management aims at the maintenance of forest multi-functionality. Especially forests that were assigned with protective or recreational functions require carefully planned management to meet their complexity <sup>(11)</sup>. Human demand for forest services and products is increasing which threatens exploitation of forests and their ecological balance <sup>(8)</sup>. Building balance of forest services is one of the greatest challenges of forest managers of all types of forests. To address the importance of balanced forests, the concept of Sustainable Forest Management (SFM) was established. Although the concept of SFM is more than 200 years old, its international recognition has increased with the Earth Summit in Rio de Janeiro in 1992 with researchers predicting a significant change of global climate by the end of this century. At the summit, an authoritative statement of forests of all types was passed <sup>(1;12)</sup>. However, balancing demands is rarely accomplished due to diverse social requirements on forests, as shown in increasing cases of degrading forests and ecosystems, and the growing dynamics of forest research to solve this elementary issue of forestry. To realize sustainability goals, governments pass legislation and guidelines for the protection of forests, its ecological services and products based on sustainability criteria and indicators. These criteria and indicators are now being implemented in forest policy all around the globe <sup>(6;7;9)</sup>.

<sup>&</sup>lt;sup>1</sup> The Montreal Process is an independent working group that aims the implementation of sustainable forest management and whose criteria and indicators are based on those released at Rio Earth Summit '92. Japan has been an active member since it was found.

<sup>\*</sup> National Institute of Technology, Kochi College, Dept. of Social Design Eng., Associate Professor

Forest laws and policies are legislative instruments with the intention to steer and guide management and operations at the production level. These complex instruments come therefore come with large social responsibility, due to their cross-relational characteristics to effectively balance the interests of production and environmental conservation. However, complexity will always also bring an increase of risk requiring managers to possess a high sophisticated level of silvicultural expertise, or at the very least, sufficient access to it. Dealing with complexity in SFM is the greatest challenge for forest managers to reach environmental goals and to stay competitive on global wood markets <sup>(10)</sup>.

### 1.1 Development of Japanese Forest Legislation

Japanese forest legislation has a long history. The first regulations for the control of wood production already existed during the Tokugawa period in the middle of the 16th century due to wood shortages caused by excessive wood consumption for construction and warfare. During Japan's so-called regenerative period in the 19th century, when forests gradually recovered from human penetration, further regulations were enacted in many areas of Japan to avoid future wood shortages. A further shortage of wood towards the end of the Second World War, as well as landslides and a decline in wildlife, prompted a further rethink towards multifunctional forestry. Over the decades, the national forestry law has been amended several times and additional forest laws have been passed to support it.

# 1.2 Critique of forest legislation

Nowadays, Japan's forestry related laws either address forest management, or specific aspects such as nature conservation, or the maintenance and enhancement of biodiversity. To name the most significant forest laws, those are the Forest Law, the Forest Owners' Association Law, and the Forest and Forestry Basic Act. Each law addresses forestry, with the exception that the FFBA was exclusively designed and created to address the multifunctional role of forest and its sustainability. However, researchers have been criticizing Japanese forest legislation, claiming its lack of applicability and imprecise formulation detail would take a crucial role for the degradation of Japanese forest, as well as Japan's challenges to compete on the global forestry market, compared to industrialized nations in Europe, which have successfully been practicing SFM for decades. The FFBA, which is the main subject of interest in this document, has frequently been the target of national and international criticism. As widely accepted worldwide, only if all three aspects, environment, society, and economy of forestry are addressed in an equal manner, we can speak of sustainability.

### 1.3 Legislation and authorities

Government agencies and regulation take an important role in managing interest parties and in making decisions on how and whether a project is implemented. In most countries EIA related legislation takes place at the national level, however, decision making may take place at the regional level. In forest management related projects in national forest areas Japan, decision making takes place at the regional within the scope of forest plans that were decided at the national level. Small aspects of environmental assessment are regionally performed for projects that intend to enhance the environmental benefit of forest through operations such as weeding and understory maintenance works.

The purpose of this publication is to assist Japanese policy makers in the development and implementation of the FFBA by revealing and discussing strengths and weaknesses. It aims to act as a presentation to help those planning and laying out future revisions of forest law in general, as well as serve as a guide to everyone who shows interest in evaluating the sufficiency and implementability of forest law in terms of meeting sustainability goals and objectives. It shall also act as an aid for those wishing to enhance the scope (Table 1) and quality of environmental impact assessments at the regional level.

Stage	Definition
1. Project screening	Narrowing of applications of EIA to projects
	with high environmental impact risk
2. Scoping	Early-stage identification of environmental
	risks and potential alternatives
3. Consideration of alternatives	Consideration of other feasible approaches
	including location, scales, processes
4. Description of project	Clarification of purpose and rationale of the
	project and its characteristics
5. Description of environmental	Establishment of present and future state of
baseline	environment incorporating changes from
	natural events and human action
6. Identification of main impacts	Identification of positive and negative
	environmental impacts
7. Prediction of impacts	Identification of the magnitude of the identified
	environmental impacts by comparing the
9 E	present and future situation
8. Evaluation and assessment of	Assessment of the significance of the predicted
0 Mitigation	Introduction of managuras to specific radius, or
9. Miligation	compensate for negative impacts
10 Public consultation and	Maintains the quality comprehensiveness and
narticipation	effectiveness of EIA by incorporating public
	views in decision-making processes
11 Environmental Impact Statement	Prevention of negation of EIA progress
(EIS) Presentation	rievention of negation of Env progress
12. Review	Systematic appraisal of EIS quality as a
	contribution to decision-making process
13. Decision-making	Consideration of the relevant authority of the
E E	EIS
14. Post-decision monitoring	Recording of outcomes associated with
	development impacts
15. Auditing	Comparing of actual outcomes with predicted
	outcomes to assess the quality of predictions
	and mitigation effectiveness

Table 1	Stages of	f Environmental	Impact	Assessment	(4)
---------	-----------	-----------------	--------	------------	-----

# 2. Methods

The current investigation involved analysis and evaluation of the law content of the FFBA based on the official SFM criteria and indicators of the Montreal Process (MP), in which Japan is currently a leading member. Both, the FFBA and the SFM criteria and indicators of the MP are available in electronic form and were obtained on their respective official internet presences. For the analysis, the latest revised version of the

FFBA was used, to provide an up-to-date evaluation. This approach connects to that of an earlier study <sup>(2)</sup> in which revision - Act No. 119 of July 16, 2003 was analyzed - and provided a confrontation to German national and federal state forest laws, however, in this current study focus is put on the SFM content of the latest and the previous revision of the FFBA. Furthermore, unlike the previous study, UN indicators that have not been integrated into the system of the MP are not part of this research, due to their irrelevance. The results of the previous study will be partly included to see where major changes and improvements of the FFBA have been made. The FFBA itself is subdivided into seven chapters and thirty-three articles, each of which was scanned for information and directives that directly address the protection, conservation and/or maintenance of MP criteria and indicators. Results were characterized on a four-band scale: not addressed (-), addressed briefly (+), addressed in detail (++), and addressed in detail and enforced by law (+++). Addressed briefly (+)describes a condition in which an MP criterion and indicator is mentioned in the Forestry Basic Act, however, its significance towards SFM is not characterized. An addressed in detail condition (++) represents context in which the importance of an MP criterion and indicator is discussed in the Forestry Basic Act to a point applicable as a guideline for local management schemes. To this extent, addressed in detail and enforced by law (+++) satisfies a condition in which an MP criterion and indicator is mandated by legal processes. Results are discussed based on the fifteen stages of the process of Environmental Impact Assessment (Table 1), as adopted by the Association for Impact Assessment<sup>(5)</sup>.

# 3. Results

As shown in Table 2, the FFBA addresses ten criteria and indicators in detail (++, or +++) with relevance to the process stages of Environmental Impact Assessment shown in Table 1.

- Preservation of area and type of forest
- Natural and human-induced abiotic impacts on forests
- 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

Article 2 of the FFBA targets the fulfillment of the multifunctional role of forestland. In it, the act acknowledges that forestland plays a vital role in the preservation of national land, water resources, natural environment, public health, prevention of global warming and supply of forest products. Further it states that "multifunctional role" of forest is crucial in maintaining a stable life of the people of Japan, and the national economy. Therefore, appropriate actions shall be taken to develop and preserve forestland for the future. Article 2 considers the importance of an ongoing forest production in mountain villages, and consideration shall be given to develop these areas incorporating the settlement of people.

### - Importance of regulations to support SFM

According to Article 1, purpose of the FFBA, forest and forestry related policies (Chapter 3 of the FFBA) shall be systematically implemented by means of establishing basic principles and matters for their realization. Furthermore, national, and local governments shall take responsibility in following and implementing these policies.

- Research and technologies to support SFM
- Partnerships to support SFM

Article 14 of the FFBA, Development and Dissemination of Technology, indicates that the government takes responsibility for setting goals for research and development of technology, and improving the relationship among private and non-private organizations. It shall also promote the dissemination of forest and forestry technology that match local characteristics to promote research and development.

### - Report of progress on SFM

In Article 10 of the FFBA the responsibility of the government to release progress reports about trends of forest and forestry is stated. These annual reports include information on policy implementation and development in consideration of forest and forestry trends.

# 4. Discussion

It can be argued that the Articles of the Forest and Forestry Basic Act that address sustainable forest management, as described by the Montreal Process, have the potential to assist decision makers by assessing potential adverse environmental impacts of forest and forestry related projects.

Scoping being the second stage of the EIA process, the decision maker can early identify possible environmental impacts by reviewing and referring to Article 2 of the FFBA. Especially potential adverse effects on preservative, maintaining and multi-functional aspects of forestland at the core of the project can be identified and communicated early. If recognized at a later stage of the process, adjustment or reconsideration may no longer be a favorable option by stakeholders who support implementation of projects with environmental risk. More sustainable project alternatives can be derived early avoiding a possible outcry of certain stakeholders later. Also, referring to the core values of Article 2 of the FFBA will add to transparency of the description of the project in dispute.

Public consultation and participation within the EIA process has the intention to maintain the quality, comprehensiveness, and effectiveness of EIA by incorporating public views in decision-making processes. It is incorporated in private and non-private stake in decision-making processes as described in fair detail in Article 14 of the FFBA. Projects aiming research, development, and utilization of technology in forestland can also be assessed within EIA by referring to Article 14 which may support the communication of the necessity to alter the scope of projects into a sustainable direction.

Reports on post-decision monitoring and auditing of larger projects could be incorporated in the annual SFM progress report as stated in Article 10 of the FFBA, and therefore make post-decision developments transparent and available to the public. This may have the potential to increase awareness and engagement in forestry and sustainability related issues and improve the quality of future EIA processes by increasing the commitment of stake.

SFM Criteria and Indicators	Level of concentration <sup>(a)</sup>
Conservation of biological diversity	
Conservation of ecosystem diversity	-
Conservation of species diversity	_
Conservation of genetic diversity	-
Maintenance of productive capacity of forests	
Preservation of area and type of forest	++
Sustainable production of wood products	+
Sustainable production of non-wood products	+
Maintenance of forest ecosystem health and vitality	
Biotic impacts on forests	+
Natural and human-induced abiotic impacts on forests	++
Conservation and maintenance of soil and water resources	
Protective function of forest and society	+
Maintenance of forest soil through proper forest management	+
Maintenance of aquatic systems through proper forest	+
management	
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 bioenergy	-
Maintenance and enhancement of long-term socioeconomic	
benefits	
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	++
Forest for recreation	-
Protection of cultural, social, and spiritual connection to forests	+
Legal, institutional, and economic framework for forest	
conservation	
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	-

 Table 2 Montreal Process SFM Criteria and Indicators addressed by Japanese Forestry Basic Act <sup>(3)</sup>

Prosecution and penalties
<sup>a</sup> - not addressed, + briefly addressed, ++ addressed in detail, +++ addressed in detail and enforced by national law

### 5. Conclusion

As outlined in the introduction, forest laws are often of different opinions in their level of detail and practical applicability with some acting as clear implementation tools into society while others merely act as general guidelines. Judging from the evaluation of the level of concentration of SFM criteria and indicators, the Japanese Basic Act seems to embody more of a compendium of guidelines rather than an SFM implementation tool. However, the FFBA shows potential to act as an aid to support Environmental Impact Assessment processes, especially impact mitigation processes targeting sustainable development and improving public awareness through expansion of stake.

# References

- Fujisawa, H., 2004. The forest planning system in relation to the forest resource and forestry policies. J For Res 9, 1-5. https://doi.org/10.1007/s10310-003-0062-y
- Gain, D., Watanabe, T., 2013. The contribution of forest regulations on the realization of sustainable forest management: a comparative law study of Japan and Germany. Internet Journal for Society for Social Management Systems, Vol. 3 SMS13-3086.
- Forest and Forestry Basic Act Act No. 161 of July 9, 1964. Date of Final Revision: Act No. 119 of July 16, 2003
- Glasson, J., Therivel, R., 2019. Introduction to Environmental Impact Assessment. 5th Edition. Routledge, New York
- 5. IAIA. 2009. What is Impact Assessment? Fargo, ND: IAIA.
- 6. Lindner, M., Fitzgerald, J. B., Zimmermann, N. E., Reyer, C., Delzon, S., van der Maaten, E., . . . Hanewinkel, M., 2014. Climate change and European forests: what do we know, what are the uncertainties, and what are the implications for forest management? Journal of Environmental Management 146, 69-83. doi:10.1016/j.jenvman.2014.07.030
- Riera, Pere & Aranda, Leticia & Mavsar, Robert. (2007). Efficiency and equity of forest policies: A graphic analysis using the partial equilibrium framework. Forest Policy and Economics. 9. 852-861. 10.1016/j. forpol.2006.03.011.
- Rist, L., & Moen, J., 2013. Sustainability in forest management and a new role for resilience thinking. Forest Ecology and Management 310, 416-427. doi:10.1016/j.foreco.2013.08.033
- Susaeta, A., Carter, D. R., Adams, D. C., 2014. Sustainability of forest management under changing climatic conditions in the southern United States: adaptation strategies, economic rents and carbon sequestration. Journal of Environmental Management 139, 80-87. doi:10.1016/j.jenvman.2014.02.033
- Spiecker, H., 2003. Silvicultural management in maintaining biodiversity and resistance of forests in Europe – temperate zone. Journal of Environmental Management 67, 55-65. doi:10.1016/S0301-4797(02) 00188-3
- 11. von Detten, R., 2011. Sustainability as a guideline for strategic planning? The problem of long-term forest management in the face of uncertainty. European Journal of Forest Research 130, 451-465.
- 12. von Gadow, et.al., 2000. Sustainable Forest Management. 1st edition. Springer Netherlands.

受理日:2021年11月15日