

The Nature Conservation Movement in Post-War Japan

CATHERINE KNIGHT

*32 Bluewater Place
Paraparaumu
Kapiti Coast, New Zealand
Email: cath.knight@xtra.co.nz*

ABSTRACT

Like many other developed or developing nations, Japan has found itself faced with the challenge of finding the balance between the economic and social needs of its nation on the one hand and the protection of its natural environment on the other, something that has been particularly challenging in the post-war decades of high economic growth rates. In this process, the national nature conservation movement has played an important role in counter-balancing the power of the pro-development forces in Japan. However, owing to a number of factors, both social and political, its influence has remained limited. This paper explores those factors, and outlines recent developments which may lead to both a greater emphasis on the greater participation of non-governmental organisations in the political process, and a greater emphasis on the protection of the natural environment.

KEYWORDS

Nature conservation, Japan, development, NGOs, LDP, Isahaya Bay

INTRODUCTION

Japan has been the target of much international criticism for its environmental practices – in particular, for its contribution to tropical forest destruction, and its driftnet fishing and whaling practices.¹ However, its domestic nature conservation practices rarely come under scrutiny in the international arena. Like most societies, Japan faces the challenge of finding the balance between the preservation of the natural environment and the social and economic needs of a nation that has undergone immense economic growth and social change, but which is at the same time constrained by the limitations of being a small, largely mountainous archipelago supporting a dense population. In this struggle to find a balance, the domestic nature conservation movement has played a pivotal role, but has remained relatively weak in terms of its influence in the social and political landscape in Japan. This paper explores the factors that have contributed to the relative weakness of the nature conservation movement in Japan. These factors fall into two distinctive, but mutually influential, categories: social (and socio-historical) factors and political factors. The paper represents an historical survey, focusing largely on the post-war decades to the end of the twentieth century.²

SOCIO-HISTORICAL AND SOCIAL FACTORS

This article will first explore the socio-historical and social factors contributing to the relative weakness of the nature conservation movement in Japan and the nature conservation ethic underpinning this movement. These factors are the comparatively recent emergence of discourse concerning nature conservation in Japanese society; the relatively low awareness of the ecological thinking which forms the basis of effective nature conservation practice; the historical tendency of environmental citizen movements to see people, rather than the environment, as victim; and the social constraints which hamper wider participation in nature conservation organisations.

The recent emergence of the nature conservation philosophy and movement in Japan

The nature conservation movement and philosophy which underpins it has developed relatively recently in Japan, in comparison to Europe and the United States, or even Australasia. This may strike some as surprising, given the much-purported Japanese veneration of nature.³ The Japanese have historically demonstrated this admiration of nature through poetry, paintings and numerous other artistic mediums. However, these artists and poets rarely based their work on contact with ‘real’ or ‘wild’ nature, rather their natural world was more generally comprised of the beautiful cultivated gardens in the urban environments in

THE NATURE CONSERVATION MOVEMENT IN POST-WAR JAPAN

which they lived. Thus, this veneration was based on an aesthetic appreciation of an idealised nature – a concept quite distinct from a desire to conserve and protect the ‘real’ nature of Japan’s forests, wetlands and waterways.⁴

In Europe and the United States, with the advent of industrialisation and the concomitant awareness of the increased human capacity for the destruction of nature, there also developed a philosophical and scientific discourse examining the relationship of human beings with nature and the ethical issues and implications connected with this relationship. In Europe, a number of scientists and philosophers emerged during the nineteenth century whose work formed the basis for the development of nature conservation and ecological philosophies. Most notably, in 1866, the word ‘ecology’ was coined by the German biologist Ernst Haeckel (1834–1919), who was key in helping to shift biology away from classical science and towards a more holistic (ecological) view.⁵

The United States, which like Japan, still had a large proportion of its primeval nature remaining at this time of emerging discourse in Europe, provides an insightful comparison to Japan in terms of the development of a nature conservation ethic. Well before the establishment of the first National Park in 1872, there was already an established body of academic and popular literature exploring the human relationship with nature and, more particularly, the value of the American wilderness and its wildlife. For example, as early as 1847, congressman George Perkins Marsh was calling attention to the destructive impact of human activity on the land and was advocating a conservationist approach to the management of forested lands. In 1862, he published *Man and Nature*, which became a significant influence in the conservation movement in the United States. In 1860, Henry David Thoreau was introducing aspects of what later became known as ‘forest ecology’. Throughout the last half of the nineteenth century and into the early twentieth century, a popular interest in ornithology was growing through books, articles and local clubs, which provided a grass-roots base for the support of many aspects of nature conservation. Already the tradition of the hunter-conservationist was established, which was a force behind the preservation of wilderness areas as spaces for recreation and relaxation. In 1876, four years after the establishment of the US’s first national park, the Appalachian Mountain Club – one of the US’s first conservation-related organisations – was formed.⁶

In comparison, in Japan, there was no parallel emergence of literature and discourse on the human relationship with nature at this time, and the first national nature conservation organisation, the Nature Conservation Society of Japan, was only established well into the twentieth century, in 1951.⁷ The first National Parks were established in 1934, but their primary purpose was economic rejuvenation through tourism rather than the preservation of wilderness for its ecological value, and, paradoxically, their establishment often led to the degradation of these areas of wilderness through development and over-use.⁸ Even today, there is little Japanese literature on nature conservation or the philo-

sophical framework and ethical issues which underpin it. The most significant works in this field are translations of Western works, such as those of pioneers John Muir and Ernest T. Seton or contemporary writers in the field. Japanese works generally deal with specific subjects or events, rather than the wider issues of ecology or sustainable human-nature relationships.⁹

The shallow-rootedness of nature conservation philosophy and nature conservation literature and discourse in the post-war years is significant for two key reasons. As will be discussed below, when the pollution crises of the 1950s and 1960s afflicted many Japanese, the focus of the citizens' movement was firmly placed on the effects on the human victims. When the urgency of the pollution crises abated, rather than turning their interests to the damage caused by industry and development to the environment itself, these citizens' movements largely disintegrated. Secondly, without a firmly entrenched philosophy and body of thought relating to nature conservation, as the majority of the Japanese population come to live in fast-paced urban environments, often hours away from any real 'wilderness', there is little awareness of the nature that people have little contact with. Whereas in the West, the stronger entrenchment of ideas regarding the moral obligation of people to protect nature, even if it is not in their immediate neighbourhood (an idea pivotal to the Western nature conservation movement) acts to counter-balance the alienating effects of urbanisation and a modern lifestyle on city-dwellers, there is little such counter-balancing effect in Japan.

Ecological awareness among the public

It can be expected that the level of ecological awareness in any society is related to the level of academic and popular discourse on nature conservation and ecology in that society, so given the limited and recent nature of this discourse in Japan, it is reasonable to assume that awareness of ecological frameworks for understanding environmental issues may also be low. Recent surveys show a relatively high awareness and concern among Japanese regarding *environmental* issues,¹⁰ but relatively low *ecological* awareness and concern for nature conservation. In a government survey which sought people's opinions on the reasons for protecting nature, an overwhelming majority of the respondents chose as one of their responses (multiple responses were possible): 'Because nature provides man with peacefulness and charm' (75 per cent); 42 per cent chose 'Because nature is important for children's sound growth and is a place to learn about nature'; 20 per cent chose 'Because protecting nature is important to conserve resources'; while a negligible percentage chose 'Because it is important to protect the ecosystems of fauna and flora' (three per cent). In summary, the majority of responses were based on anthropocentric rather than ecological premises for preserving nature.¹¹

This apparent lack of ecological awareness can also be seen among groups that are actively interested in environmental issues. Even when there is a high

THE NATURE CONSERVATION MOVEMENT IN POST-WAR JAPAN

level of concern about a development project with significant environmental impacts such as the building of a dam or highway, environmental opposition tends to be based not on wider ecological premises, but specific impacts, such as the extinction of one species within a habitat, often focusing on its implications for humans also. For example, a group which opposed the building of the Nagara dam in Japan's last major free-flowing river focused on the possibility that the *satsukimasu* fish might be made extinct. Further, the group concentrated on the implications its extinction would have on the livelihoods of local fishermen. Similarly, in media coverage of the Isahaya Tideland reclamation project, the *mutugoro*, or mudskipper (*Periophthalmus pectinirostri*) (see Figure 1), became the focus of the campaign, while in fact over 300 species and an entire ecological system were at risk. This was also the case in the campaign against the construction of a golf course on the southern Amami Islands of Japan. The environmental organisation opposing the project deliberately focused its campaign on the threat to the endangered Amami black rabbit, though again, several other species and an ecosystem were at risk.¹² In employing this strategy, the organisation was able to garner strong public support for conservation efforts and was ultimately successful: the Ministry of Culture subsequently put a halt to development plans. Thus, it can be argued that by focusing on a species as an emblem of such campaigns, these organisations are simply working within the constraints of public awareness, though at the same time, opportunities to better inform the public about wider ecological implications are lost.¹³



FIGURE 1. The *mutugoro* became emblematic of all the creatures endangered by the Isahaya reclamation project. Photo: Kazuo Kashima.

It has been suggested that one of the reasons why Japan has been relatively unsuccessful in its nature conservation policy is its tendency to favour a technocratic and post-facto approach to environmental problems.¹⁴ This can also be interpreted as a product of a low level of ecological awareness: environmentalists have suggested that the 'technofix' approach to solving environmental problems is not only inappropriate but also dangerous, since it fails to consider ecological limits to economic growth. While Japan's pollution abatement policy, which focuses on the development of technologies to minimise the effects of pollution, has been relatively successful, nature conservation policy, which relies on significant attitudinal and behavioural changes in society, and a greater awareness of ecological frameworks for understanding, has been less successful. The technological approach has proved advantageous to Japan not only because it does not require social change, but also because of its economic benefits: Japan has been able to sell its pollution technology on both domestic and international markets. However, there do seem to be some signs that faith in this approach to solving environmental problems is on the wane: in a 2000 ISSP survey, only 1.5 per cent of respondents believed that science would solve environmental problems without any need for people to change their lifestyles. In contrast, 43.3 per cent disagreed with this statement.¹⁵

The tendency to see humans, rather than the environment, as victim

Some of the most alarming cases of industrial pollution in modern times occurred in Japan during the 1950s, 1960s and 1970s during Japan's transition from post-war reconstruction to a period of rapid economic growth. The cases of severe industrial pollution in the 1950s and 1960s (which became known as the 'big four') were the two incidents of Minamata 'disease' of the late 1950s and 1960s, when chemical waste containing mercury was discharged into Minamata Bay from a fertiliser factory; Yokkaichi asthma, caused by sulphur dioxide and nitrogen dioxide emissions from the petrochemical industry; and *Itai-itai* 'disease' of the 1960s, when chemical waste containing cadmium and other heavy metals was discharged into a river. These cases of pollution caused tremendous human suffering, and not surprisingly, citizen protest tended to focus on the human victims rather than the impacts of the pollution on the natural environment.

While citizens' groups are increasingly focusing on the health and protection of the environment itself, there is still a tendency to be motivated by personal interests. This may be related to the fact that the government is more responsive to opposition based on practical (particularly economic) bases rather than more 'abstract' ecological bases. This is seen in the case of the Isahaya Bay reclamation in Kyushu, which involved the building of a seven kilometre-long dike intended to convert the tideland flats in Isahaya Bay into farmland and freshwater reservoirs for flood control. The tideland was the biggest in Japan, home to diverse plant and animal life and an important stop-over point for a

THE NATURE CONSERVATION MOVEMENT IN POST-WAR JAPAN

large number of migratory birds. For many years, the government had remained unmoved by sustained and vigorous opposition to the project on environmental grounds. However, in 2001, a poor *nori* (an edible seaweed) harvest from the Ariake sea, which normally constitutes 40 per cent of all the *nori* consumed in Japan, caused significant alarm throughout Japan. It was widely believed that the poor harvest was due to the sluice gates across Isahaya Bay disrupting the flow of seawater from the East China Sea, allowing plankton to flourish at the expense of the *nori*. The lack of supply and possible price increases of *nori* caused concern among government officials who had remained unmoved by the previous environmental opposition to the project: questions were tabled in parliament, newspapers gave the issue extensive coverage, and opposition party politicians joined in the protests of the *nori* harvesters. Finally, in 2002, in response to the widespread concern, the sluice gates were opened for the first time since their closure in 1997 to conduct an investigation into the cause of the poor seaweed harvests, something that widespread and sustained protest on environmental grounds had been unable to achieve.¹⁶

The emphasis on environmental issues affecting human wellbeing is also reflected in the focus of the Ministry of the Environment since its inception (as the Environment Agency). It was public pressure resulting from the pollution incidents of the 1950s and 1960s which led to the establishment of the Environment Agency, and pollution abatement has continued to be a key policy area for this agency. This emphasis is reflected in a survey of the annual White Papers published by the Environment Agency: the primary focus of these publications has historically been on pollution issues, and increasingly, issues such as waste management.¹⁷

Social constraints

There are a number of social constraints which have hampered the development of a robust non-governmental organisation (NGO) sector in Japan. In addition to there not being a strong tradition of volunteering for public causes, the pace of working life in Japan is not conducive to volunteerism; after commuting up to two or three hours or more a day and spending long hours at the office or factory, few people have the time or the energy to participate in volunteer activities. In addition, there are no formalised systems in Japan for encouraging citizens to work in NGOs, such as the case in Germany, where NGOs provide alternative work opportunities for the unemployed or those who choose not to do military service. In this environment, it has predominantly been retired people or women who are not in paid employment who have the free time to be involved in environmental organisations. Nonetheless, working hours have been on a steady decline since the early 1990s, and in 2002, the average hours worked were more than 10 per cent less than the average in 1990 (calculated

using data from Statistics Bureau of Japan) – noting that these statistics do not reflect unpaid ‘voluntary overtime’.¹⁸

It has been suggested that a misunderstanding of the role, activities, and functions of NGOs, and antagonistic attitudes toward environmental organisations have also hampered the growth of this NGO sector. However, there are signs that these attitudes are changing. A strong catalyst for change was the Great Hanshin earthquake of 1995, where people saw first-hand how effective and responsive volunteer groups were in comparison to government sectors. Since the earthquake, there has been a marked increase in volunteer activity in Japan. The rapid ageing of Japanese society has also led to the increasing realisation of the importance of the NGO sector in the face of the government’s inability to cope with the increasing demands of an ageing population. According to a 2001 survey, over 32 million people reported doing some form of volunteer work over the course of a normal year – nearly 30 per cent of the adult population capable of participating in such work. This represented a 3.6 per cent increase on the figures for 1996. In addition, according to a 2003 survey, just over 60 per cent of Japanese corporations responded that they support the volunteer activities of their employees (in contrast to 35 per cent in 1993).¹⁹

Perhaps indicating these changing attitudes in recent years, the level of public trust in environmental NGOs is now relatively high. In a 2002 survey, about 30 per cent of respondents said that in regard to environmental pollution issues, they either strongly trusted or moderately trusted information from environmental protection groups (a level of trust higher than that indicated towards industry and government, and equal to that towards university research institutions).²⁰

Clearly, the media also has a role both in alerting the public to environmental issues and giving a voice to organisations other than corporate or government organisations, and it appears that NGO activities are receiving increasing media attention. However, it has also been reported that the Japanese news media frequently use only information provided by government agencies and officials, without much effort to investigate or consult a variety of sources.²¹

POLITICAL FACTORS

A major factor in the destruction of what remains of Japan’s natural environments has been the seemingly relentless drive for economic development, particularly during the post-war rapid economic growth period. The drive for economic growth exists in many countries, but what has made it particularly damaging in terms of its impacts on the environment in Japan has been the powerful nature of the ‘triumvirate’ – the government, bureaucracy and industry – which has come to have a vested interest in seemingly unbridled development. Development has largely been untempered by any effective balancing forces: neither the Ministry of the Environment, the agency established to formulate and oversee environ-

THE NATURE CONSERVATION MOVEMENT IN POST-WAR JAPAN

mental protection policy, nor civil society have been able to form an effective counter-balance against these powerful forces for development.

The following section will illustrate that a primary factor contributing to development at the expense of the natural environment is a lack of a pluralistic and fully participant democratic framework allowing the proponents for environmental protection to be politically effective. The political factors which contribute to this situation are: powerful development interests; political weakness of the Environment Agency; lack of effective environmental impact assessment policy; and the failure of the environmental NGO community to become institutionalised.

Powerful development interests

A key driver in the degradation of Japan's natural environment has been the pursuit of large-scale development projects, such as land-reclamation, dam building, and road and airport construction. In 1993 for example, 31.8 trillion yen of public funds (43 per cent of the national budget for that year) went to the construction industry as payment for public works. This is the product of government policy aimed at increasing public works spending and the result of a collusive system for planning and executing public works projects.²²

This collusive system has its origins in post-war politics. Until the election to government of the Democratic Party of Japan in 2009, the governing party, the Liberal Democratic Party (LDP), had been in power almost continuously since its inception in 1955. After five decades in office, the LDP had developed an extensive network of support and patronage, linking bureaucracy, big business and the powerful construction industry. This in turn made it very difficult for opposition parties to challenge its power. In this system, there is little transparency and accountability, and corruption is common. Public funds are spent on large-scale projects using a cartel-like system, in which the purpose of development projects has less importance than the reproduction of power and the distribution of profit.²³

The Isahaya Bay reclamation project, outlined above, vividly shows the pernicious potential of the collusive system which operates behind many of Japan's public works projects. The project was first conceived in 1952 as a means of increasing food production but it was shelved in the face of increasing rice surpluses. It was revived in 1970, primarily for the purpose of securing an adequate fresh water supply for the area, but abandoned again after strong opposition from local fishermen. It was resurrected yet again in 1983 with the objective of reclaiming 1,500 hectares of tidal land for agricultural land and the added justification of flood control. Construction began in 1989, amidst intense local protest. In 1997, the dyke was completed, closing off Japan's largest remaining tidal land from the sea (see Figure 2).



FIGURE 2. A section of the 7 km long sluice-gate across Isahaya Bay.
Photo: Shigeki Imaoka

Behind the project's resurrection was the powerful construction lobby, which encouraged bureaucrats and politicians in the LDP government to push ahead with the plan. The 'encouragement' was often in the form of financial contributions: research cited by Fukatsu (1997) reveals that 15 of the 38 contractors in the Isahaya Bay project contributed a total of 27.6 million yen to the LDP chapter in Nagasaki Prefecture in 1995, while nine firms donated 1.98 million yen to the Nagasaki Governor's supporters' association.²⁴

The objections raised against the project were numerous. While one of the main purposes of the project was the reclamation of farmland, by this time there was a national policy to reduce rice production and already a large area of farmland was lying fallow.²⁵ Local farmers also viewed the plan with scepticism, maintaining that reclaimed farmland has poor drainage and infertile soil which requires the application of large amounts of fertiliser, and that produce from such soil tends to be of inferior quality, resulting in low profit margins. An additional justification for the project was flood control: silt sedimentation raises the level of the wetlands higher than the surrounding farmland, causing flooding when there is heavy rain. Flood prevention pools, created as part of the project, were intended to prevent this. However, about a month after the tidelands were sealed off, heavy rain again caused flooding of the low-lying farmland.²⁶ Furthermore, conservationists claimed that the reclamation would destroy the biggest remaining tideland in Japan, habitat to a diverse range of

THE NATURE CONSERVATION MOVEMENT IN POST-WAR JAPAN

species, including locally endemic species such as the mudskipper, and destroy the tideland's function as an important stop-over point for a large number of migratory birds, including a large population of Chinese black-headed gulls, a species facing extinction.²⁷

Efforts to halt the reclamation work were initiated by a few small conservation groups, but public sentiment against the project mounted as awareness was raised through media coverage. A 1997 survey conducted by *Asahi Shinbun* (one of Japan's major national newspapers) found that 58 per cent of the 1,548 respondents believed that seawater should be allowed to flow back in to save the marine life that inhabited the tidal flats. The opposition to the project was extensive: over 250 organisations, both domestic and international, submitted formal protests to the government, asking it to halt the project. However, despite the widespread opposition and the obvious flaws in the project, the government refused to review or cancel it.²⁸

The historical weakness of the Environment Agency

The imbalance caused by the power of the 'triumvirate' has been exacerbated by the historical weakness of the Environment Agency (restructured to become the Ministry of the Environment in 2000). One key factor contributing to this weakness is institutional: from its inception, its structure and staffing has not been conducive to its establishing itself as an influential agency in the political landscape in Japan.

The Environment Agency was formed in 1971. Its staff were appointed from 12 different ministries, and the upper management positions in the various divisions in the EA were held, in rotation, by managers from other ministries. Once their term was complete, they would return to their permanent position. This caused a clear conflict of interest, as officials were reluctant to support decisions which ran counter to the interests of their home ministry. In addition, the post of director general of the EA was rarely accepted by politicians who were influential in the Diet (parliament).²⁹

Another factor contributing to its weakness has been a lack of public interest in environmental issues beyond industrial pollution issues. Few new major environmental laws were passed in Japan after the mid-1970s until the beginning of the 1990s, and Schreurs (2002) suggests that the primary reason for this was the decrease in public and media attention regarding the environment once newly introduced pollution controls curbed citizen protest concerning industrial pollution – the decrease in activities by the citizens' movements meant that the Environmental Agency was left with little public support. In addition, after the first oil crisis in 1973, industry resistance to further environmental regulation increased and the government was pressured to ease its environmental regulations.³⁰

Historically, the Environment Agency had little regulatory and enforcement power: laws relating to the protection of endangered species, national

parks and environmental impact assessments have been enacted over the years but have largely been toothless without the authority and resources to enforce them. Instead, laws relating to the environment are often enforced by the very government agency which promotes the activity being regulated, leading to obvious conflicts of interest. For example, the Ministry of International Trade and Industry promotes trade, but at the same time regulates the importation of wildlife products. Similarly, the Ministry of Construction is responsible for public works programmes, but has also been responsible for conducting environmental impact assessments for those projects. Many national parks are under the jurisdiction of the Forestry Agency, which has a clear economic interest in harvesting, rather than conserving, forests within national parks.

Nonetheless, there are signs that the preservation of the natural environment is becoming a more important policy area in Japan. The Ministry of the Environment was the only Ministry to be created in the government restructuring in 2000, and within the Ministry a Nature Conservation Bureau, which in turn includes a Wildlife Division and a Biodiversity Policy Division, has been established.³¹

Lack of rigorous environmental impact assessment

The lack, until recently, of legislation requiring environmental impacts to be assessed before commencing development projects is itself a consequence of the historical weakness of the Environment Agency. After many unsuccessful attempts by the Environment Agency to introduce such legislation, the Environmental Impact Assessment Law was enacted in 1997. Until this time there was no requirement for developers to complete independent environmental impact assessments (EIA) – a factor that has allowed development projects to proceed with little or no consideration of the impact on the environment. Even in cases where EIAs were carried out, not only were the assessments non-binding, but they were generally carried out or contracted out by the same ministry whose role it was to execute the public works programmes. Under this system, very rarely was a major project stopped as a result of an environmental impact assessment.³²

The new system makes EIA compulsory for all large-scale projects carried out by central government, and provides increased opportunities for public participation in the assessment process. This means that before the commencement of large-scale publicly-funded development projects such as the construction of roads, airports and power stations, project planners must conduct preliminary surveys and assessments of the potential environmental impact of the projects, and consult with local governments, citizens and other interested parties to seek their input.³³

However, the new law has also attracted criticism: it only applies to public works carried out by the central government (not prefectural governments, other local bodies, or the private sector) and does not apply to projects already approved before the law came into force in 1999. Additionally, the law has been

THE NATURE CONSERVATION MOVEMENT IN POST-WAR JAPAN

criticised because it views the impact assessment too narrowly: the law requires that a variety of options be provided for the *execution* of the proposed project, but does not require options at a higher, strategic level. Thus, options such as finding an alternative solution to the proposed project, or not proceeding with a project at all, are not required as part of the range of options explored.³⁴

The institutionalisation of environmental NGOs

An active and participant environmental NGO community plays a vital role in the advancement of environmental policy, and in helping to balance political power – and they have a particularly important role in Japan where the pro-development triumvirate is economically and politically powerful. This is illustrated by Japan's own social history – in the 1960s and 1970s its citizens' movement made a significant contribution to the formulation of some of the strictest anti-pollution laws in the world at that time.³⁵

Environmental NGOs, particularly those focusing on nature conservation, are comparatively weak in terms of membership, staff, resources and political influence, compared to other OECD countries. The vast majority are relatively small localised groups focusing on specific local issues and with limited representation on advisory councils and committees at national or prefectural levels. The largest nature conservation oriented organisations are the Japanese branch of the World Wide Fund for Nature and the Wild Bird Society of Japan, with about 50,000 members (approximately 0.04 per cent of the population) each. The Nature Conservation Society of Japan has about 22,000 individual members. There are also more than 5,000 small groups engaged in environmental protection and nature conservation, predominantly active grass-roots efforts focused on a single issue.³⁶

One major difference in the environmental policy formulation process in Japan, compared with Europe and North America, is that in Japan, environmental NGOs have failed to become a central part of that process. While citizens' groups played a major role in pushing for the introduction of environmental laws in Japan in the 1960s and 1970s, they have played little part in the environmental policy changes in the last few decades. This has to a large extent been the result of barriers that have prevented the institutionalisation of the environmental NGO community. These barriers include the extreme difficulty in gaining non-profit (and therefore tax-exempt) status; legal constraints which limit funding; lack of access to public information; and lack of a framework for consultation or participation in government policy formulation.³⁷

Until recently, in order to gain non-profit status, an organisation had to first obtain approval from the local or national government department which had jurisdiction over the policy area. This system clearly put the organisation at a disadvantage, because the approval was at the authority's discretion, and the authority was likely to be antagonistic towards NGO activities in its policy area.

The outcome was, therefore, arbitrary, and even if approval was granted, there was potential for a loss of autonomy if the relevant authority sought to control or limit the organisation's activities. The lack of predictability in the process meant that few organisations attempted to gain non-profit status. In 1998, the Nonprofit Organisation (NPO) Law was introduced. This law substantially reduced the time and paperwork required for incorporation and makes the process more predictable: incorporation is based solely on a set of objective criteria, rather than an approval process determined at the discretion of government agencies.³⁸

In 2001, new tax legislation was introduced to allow NPOs incorporated under the NPO Law to receive tax-deductible donations in some limited cases. Unfortunately, the conditions which organisations must satisfy are very strict, and few incorporated NPOs are actually approved. More than a year after the introduction of this legislation, only ten NPOs had been authorised to receive this tax privilege. Some amendments have since been made with the aim of allowing more to become authorised.³⁹

The Japanese NGO community is clearly hampered by financial constraints: it is reported that the average budget for environmental lobby groups in the United States is on average twenty times that of their Japanese counterparts. Without non-profit status, the majority of NGOs support their activities primarily through membership donations (as opposed to donations from the general public or corporate donations), which, given the small size of the average NGO membership, put considerable financial constraints on their activities. This is borne out by a 1999 study, which found that 80 per cent of the organisations surveyed reported that their main difficulty was limited or unstable income.⁴⁰

Another major barrier has been the lack of legislation allowing NGOs or individuals access to official information. Until recently, access to environmental information held by public administrations was limited. Some improvement may now be expected with the 1999 Information Disclosure Law that came into force in 2001, which requires the disclosure of government and policy information when requested. However, there is a concern that most information related to ongoing policy development will not be disclosed on the basis of a provision which allows for certain kinds of information to be excluded if it is perceived that its release might result in 'a harmful exchange of opinions, or that the neutrality of decision making might suffer'.⁴¹

One potentially beneficial side-effect of the Japanese government's desire to be an international leader in the areas of overseas development aid and the environment, which is closely connected with its economic and foreign policy interests, is that it has drawn increased international scrutiny of its environmental policy formulation process. Japan has attracted criticism from the international community, which has been sceptical of environmental policies formulated by the Japanese government with minimal NGO or citizen input. In particular, strong doubts have been raised regarding the authenticity of Japan's desire to

THE NATURE CONSERVATION MOVEMENT IN POST-WAR JAPAN

be an international environmental leader when it has no major environmental NGO monitoring or providing input into its policy formulation and actions.⁴²

There are also signs that the attitudes of both the government and the public towards NGOs are changing. For example, increasingly, government officials appear to be soliciting feedback from NGOs. The government, and society generally, is realising the importance of the NGO sector as a core participant in society, and, increasingly, the economy. As mentioned, a key event contributing to this realisation was the Great Hanshin earthquake of 1995, where, in comparison to the slow and ineffective bureaucratic response to the disaster, the efficiency and dedication of the more than one million volunteers was striking. In addition, in the face of a long-term economic downturn and an ageing population, the government has realised that fostering the NGO community to do the work of some government sectors makes economic sense.⁴³

CONCLUSIONS

As this paper has outlined, the factors contributing to the relative weakness and ineffectiveness of the nature conservation movement in Japan in the post-war decades can be divided into two distinct, but mutually influential, categories: social/socio-historical factors and political factors.

Underpinning the socio-historical factors is the failure of a strong ideological or ethical framework for the pro-active protection of nature to develop in Japan, and connected to this, the historical tendency to see humans rather than the environment as the primary victim of environmental degradation. This has meant that when concerns over the industrial pollution incidents of 1950s, 1960s and 1970s were largely resolved through legislative measures, the environmental movement lost much of its momentum, rather than turning its attention to the protection of the natural environment itself.

In terms of political factors, the powerful nature of the pro-development triumvirate, the historical weakness of the Environment Agency, the lack of effective policy for environmental impact assessment, and, perhaps most critically, the failure of NGOs to become institutionalised, have been key contributors to a political landscape in which the forces for development prevail over the forces for the protection of the natural environment. Owing to this unbalanced nature of political power in Japan, opposition to environmental degradation has largely been ineffective in bringing about policy change or the prevention of environmentally damaging projects.

There are signs that the balance of power between pro-development and pro-conservationist forces may be beginning to change – albeit only gradually – in favour of environmental protection. First, there is now a greater political emphasis on the protection of natural environments and wildlife, as reflected in the establishment of agencies within the Ministry of the Environment concerned

specifically with the protection of Japan's natural environment and biodiversity. Secondly, improvements are already being seen in the participation in, and attitudes towards, NGOs and recent legislative developments, though limited in many respects, should nevertheless facilitate greater NGO participation in policy formulation and consultation on nature conservation issues. A further development is the election to government of the Democratic Party of Japan in 2009, after five virtually continuous decades of rule by the consistently pro-development Liberal Democratic Party.⁴⁴ However, only time will tell whether these developments will translate into tangible improvements in the protection of natural environments and wildlife in practice.

NOTES

¹ See, for example, Kellert 1991, 299; Holliman 1990; McGill 1992; Knight 1997, 711; Linden 1989; Morioka 1997.

² This paper explores not only the formalised nature conservation organisations which form the core of any nature conservation movement, but also the impetus to preserve and protect the natural environment on the part of the government and the public generally. It should also be noted that this paper focuses specifically on the nature conservation movement, rather than environmental movement as a whole (see Mason 1999 for an examination of the post-war development of the latter).

³ See, for example, Murota 1985; Watanabe 1974; Ishi 1992; Yasuda 1992; Anesaki 1933 and Nakamura 1964.

⁴ Integral to this discussion is the definition of 'nature', a word which has many definitions, including 'all natural phenomena and plant and animal life, as distinct from humans and their creations' and 'a primitive state untouched by human or civilisation'. However, in the context of this discussion of nature conservation, the former is too wide a definition, as it encompasses gardens, parks and other environments which are entirely or largely human-made, as well as exotic species of flora and fauna which pose a potential threat to indigenous species and ecosystems. At the same time, the latter is too narrow – in fact, it is unlikely that any such natural environments exist anywhere on earth. Therefore for the purpose of this discussion, 'nature' and 'natural environments' will refer to environments such as wetlands, rivers or forests which support ecological systems of flora and fauna indigenous to Japan. Some areas may be partially or substantially modified (such as a river which has been straightened or modified with concrete embankments) but still support significant biological diversity.

See Knight 2004 for an in-depth discussion of the paradox apparent in the much-propounded Japanese veneration of nature versus the ongoing degradation of nature in Japan.

⁵ Pepper 1996, 184.

⁶ Library of Congress 2002.

⁷ This is not to say that there were not individuals in Japan's history who were keenly concerned about human impacts on the environment. For example, Tanaka Shōzo (1841–1913), often hailed as Japan's first conservationist, campaigned tirelessly until his death for a resolution to the pollution caused by the Ashio Copper Mine. However, it is

THE NATURE CONSERVATION MOVEMENT IN POST-WAR JAPAN

not entirely accurate to describe him as a 'nature conservationist', as his primary concern was for the farmers and villages affected by the pollution, rather than the effect on the environment itself. In any case, he was a man of action rather than of the pen, so though a significant figure in Japanese social history (especially in terms of citizen protest) he did not leave a significant legacy in respect to literature on the subject.

Similarly, eighteenth century medical doctor and philosopher Andō Shōeki (1703–1762), who is most widely known for his radical rejection of the feudal order, also wrote extensively about the human relationship with nature, especially of destructive human impacts on nature. However, his writings remained virtually unknown outside a small circle of contemporary followers until they were rediscovered at the turn of the twentieth century. Even then his works did not begin to be the object of widespread study until after World War Two, and it was more recently that his ecological ideas have received attention (Akiyama and Allen 1998, 282). Furthermore, as Morris-Suzuki notes, in Andō's writings 'nature' (*shizen* in Japanese) refers to 'far more than "the physical environment": Rather, it is the metaphysical concept implying the self-existent, the ground of all being' (Morris-Suzuki 1998, 40).

⁸ The objective of the original law relating to national parks in Japan, the National Parks Law (1931), was to 'preserve areas of outstanding beauty, while contributing towards the health, recreation and cultural education of Japanese citizens' (Article 1, National Parks Law). National parks were for the most part selected for their general appeal as places of scenic beauty and their potential to contribute to national prestige and tourism, as opposed to their ecological value. The two exceptions were the Akan and Daisetsuzan Parks of Hokkaidō, which were selected because they were places characterised by primeval nature worthy of preservation (Hatakeyama 2005, 205). After World War Two, a number of 'quasi-national parks' were established under the Natural Parks Law (1957), particularly near the main cities, mainly for recreation purposes (Sutherland & Britton 1980, 6; Hatakeyama 2005, 207–8). See Ishikawa (2001), Hatakeyama (2005) and Knight (2004) for a discussion of the function of national parks in Japan. This law was enacted against a background of government initiatives and policies to encourage the development of the tourism and leisure industry. Natural parks were seen as an important aid in the development of tourism, particularly during this post-war period when rebuilding the economy was a priority.

⁹ The lack of emphasis on nature conservation is also reflected in government literature on the environment. A survey of the State of the Environment White Papers published by the Environment Agency between the years 1977 to 2000, reveals little discussion of nature conservation issues. Where wildlife and wildlife habitats are discussed, it has predominantly been in terms of 'the sustainable management of resources'.

¹⁰ For example, in the 2000 International Social Survey Programme (ISSP) survey, 50 per cent of respondents had either a strong or moderate interest in environmental issues. A further 43.5 per cent said that they had some interest in environmental issues (Aramaki 2001, 57).

¹¹ Environment Agency 1993, 101.

¹² McGill 1992; Ohkura 2003; Fukatsu 1997; Domoto 1997.

¹³ While this might be said of many nature conservation campaigns internationally, it is an especially prominent feature of campaigns in Japan.

¹⁴ While it is difficult to objectively assess the success or otherwise of a nation's performance in respect to its nature conservation policies and initiatives, endangered species data acts as one indicator. For example, of the approximately 200 mammal species found in Japan, over a quarter are extinct, critically endangered, endangered or vulnerable. Of about 700 bird species, more than 100 are extinct, critically endangered, endangered or vulnerable. Of about 300 fresh or brackish water fish species, 79 are extinct, critically endangered, endangered or vulnerable (Ministry of the Environment 2006). Even when a species faces extinction, the official response in the past has been less than effective. For example, in the case of the Japanese crested ibis (*Nipponia nippon*), it was only in 1981, when the bird had dwindled to a few individuals, that any decisive efforts to conserve the species were made. However, while large sums of money were spent on a captive breeding programme on Sado Island, the programme failed, with all the ibises taken into captivity dying by 2003. Even had international best practice been followed (according to Brazil, the advice and assistance of specialists in successful breeding programmes elsewhere in the world was ignored) the ibises may have been too old, too few in number, and too contaminated with pesticides to breed successfully by the time any decisive action was taken (Brazil 1992, 332–3).

¹⁵ Danaher 1996; McGill 1992; Aramaki 2001, 13.

¹⁶ Watts 2001; *The Japan Times* 25 April 2002.

¹⁷ Schreurs 1996. The survey I undertook was of a selection of White Papers published between 1977 to 2000.

¹⁸ Holliman 1990, 286–7; McCormack 1996, 80; Foljanty-Jost 2005, 112; Statistics Bureau of Japan 2003a.

¹⁹ Holliman 1990, 286; Schreurs 1996; Menju 2002; Ogura 2004, 24.

²⁰ Hirao 2003; Aramaki 2001.

²¹ Menju 2002; Feldman 1993, cited in Ohkura 2003.

²² McCormack 1996; Fukatsu 1997; Mason 1999.

²³ McCormack 1996, 33–4; Fukatsu 1997, 21.

²⁴ Fukatsu 1997; Crowell and Murakami 2001.

²⁵ In 1998, for example, over 45,000 hectares of farmland was abandoned or converted to another land-use, and this trend has continued at a similar, if slightly lower rate in subsequent years (Statistics Bureau of Japan 2003b).

²⁶ The Ministry of Agriculture, Forestry and Fisheries (the ministry overseeing the project) subsequently claimed that the project was only supposed to provide 'partial' protection from flooding (Fukatsu 1997, 32).

²⁷ Fukatsu 1997, 30–1; Stanley 2002.

²⁸ Fukatsu 1997, 30. The sheer extent of this protest illustrates the fact that failure to protect important natural environments in Japan cannot be explained simply by a lack of concern for the environment. The protest was sustained, extensive – emanating from many sectors of society, not just environmental groups – and the arguments against the project were numerous, sound and persuasive. It illustrates the extent of the barrier represented by the current political system based on vested interests. The same pattern can be seen in the case of other development projects, such as the Nagara River dam project.

²⁹ Oyadomari 1989, 29.

³⁰ Mason 1999, 189; Schreurs 2002, 75; Oyadomari 1989, 29.

THE NATURE CONSERVATION MOVEMENT IN POST-WAR JAPAN

- ³¹ Schreurs 2002, 5.
- ³² OECD 2002, 58, 180, 280; Tanaka 2001; McGill 1992.
- ³³ OECD 2002, 58; MOE n.d.
- ³⁴ Yoshida Masahito 2004, pers. comm.; Tanaka 2001; Yoshida Masahito 2004, pers. comm.; OECD 2002: 40, 52, 180.
- ³⁵ Schreurs 2002; OECD 2002, 145–6; Mason 1999; Schreurs 1996.
- ³⁶ OECD 2002, 31, 174, 182; Brazil 1992.
- ³⁷ Mason 1999; Schreurs 2002: 22–23.
- ³⁸ Schreurs 1996; Craft 2000; *The Japan Times* June 14, 2001; Itoh and Shimada 2003; Japan NPO Center n.d.
- ³⁹ Japan NPO Center n.d.; *The Japan Times*, June 14, 2001; Itoh and Shimada 2003.
- ⁴⁰ *The Japan Times* June 14, 2001; Schreurs 1996; Craft 2000.
- ⁴¹ OECD 2002, 179; Nakamura 2000, 45.
- ⁴² Schreurs 1996.
- ⁴³ Schreurs 1996; Craft 2000; Brehm 2002; Menju 2002.
- ⁴⁴ Though it is too early to tell what implications this will have for nature conservation policy in Japan, the early signals in terms of the new government's position on environmentally destructive construction projects have been positive. In September 2009, on its first day in office, the DPJ announced its decision to halt the Yamba Dam, a highly controversial project that has been promoted by the LDP government since 1952.

REFERENCES

- Akiyama, Ken and Allen, Bruce 1998. 'Pre-modern Japanese nature writing: the example of Andō Shōeki'. In Patrick D. Murphy (ed.), *Literature of Nature: An International Sourcebook* (Chicago: Fitzroy Dearborn Publishers), 281–3.
- Anesaki, Masaharu 1933. *Art, Life, and Nature in Japan*. Westport, Conn.: Greenwood Press.
- Aramaki, Hisashi 2001. Yoronchōsa ripōto: Tsuyomaru kankyō haki e no kikikan. (Mounting concern for the environment: From the results of the ISSP's international comparative study: Japan). *Hōsō kenkyū to chōsa (The NHK Monthly Report on Broadcast Research)* 5: 56–69.
- Brazil, Mark 1992. 'The wildlife of Japan: A 20th-century naturalist's view'. *Japan Quarterly*, July–September 1992.
- Brehm, Vicky 2002. 'Development NGOs in Japan: Facing rapid change'. *Informed: NGO funding and policy bulletin* 6 (May), 12–14. Retrieved 14 April 2004 from <http://www.intrac.org/Intrac/docs/6Informed.pdf>.
- Craft, Lucille 2000. 'Japan's nonprofits carve out a space of their own'. *The Japan Times*, 28 September. Retrieved 26 April 2004 from <http://www.japantimes.co.jp/cgi-bin/getarticle.pl5?eo20000928a2.htm>.
- Crowell, Todd and Murakami Mutsuko 2001. 'Public works time bombs'. *AsiaWeek.com* 27(6). Retrieved 1 August 2003 from <http://www.asiaweek.com/asiaweek/magazine/nations/0,8782,98449,00.html>.

- Danaher, Michael 1996. 'What price the environment? An analysis of Japanese public awareness of environmental issues'. Paper presented at the 1996 Asian Studies on the Pacific Coast (ASPAC) Conference, University of Alberta, Edmonton, Canada, 21–23 June 1996.
- Domoto, Akiko 1997. *Report on biodiversity submitted to Rio+5 Summit*. Retrieved 18 March 2004 from <http://www.globeinternational.org/archives/earthsummit/earth5rio-biodiversity.html>.
- Environment Agency (Japan) 1977. *The State of the Environment in Japan 1977*. Tokyo: Environment Agency.
- Environment Agency (Japan) 1984. *Kankyō hakushō 1984 (Environmental White Paper 1984)*. Tokyo: Environment Agency.
- Environment Agency (Japan) 1988. *Kankyō hakushō 1988 (Environmental White Paper 1988)*. Tokyo: Environment Agency.
- Environment Agency (Japan) 1993. *The State of the Environment in Japan 1992*. Tokyo: Environment Agency.
- Environment Agency (Japan) 2000. *Kankyō hakushō 1999 (Environmental White Paper 1999)* (vols 1–2). Tokyo: Environment Agency.
- Foljanty-Jost, Gesine 2005. 'NGOs in environmental networks in Germany and Japan: the question of power and influence'. *Social Science Japan Journal*, 8(1): 103–117.
- Fukatsu, Hiroshi 1997. 'Tideland project brings waves of controversy'. *Japan Quarterly*, October–December.
- Hatakeyama, Takemichi 2005. *Shizen hogohō kōgi (Nature Conservation Law)* (2nd edn). Sapporo: Hokkaidō University Books Publication Society.
- Hirao, Sachiko 2003. 'Alternative career rewarding but low-paid: Fledgling social-service NPOs gain foothold'. *The Japan Times*. Retrieved 23 April 2004 from <http://www.japantimes.co.jp/cgi-bin/getarticle.pl5?nn20030503b4.htm>.
- Holliman, Jonathan 1990. 'Environmentalism with a global scope'. *Japan Quarterly*, July–September.
- Ishi, Hiroyuki 1992. 'Attitudes toward the natural world and the whaling issue'. *Japan Foundation Newsletter*, XIX(4): 1–11.
- Ishikawa, Tetsuya 2001. *Nihon no shizen-hogo (Nature Conservation in Japan)*. Tokyo: Heibonsha.
- Itoh, Satoko and Shimada, Ema, eds. 2003. 'New legal reform efforts receive mixed welcome'. *Civil Society Monitor*, 8: 1–4. Retrieved 30 April 2004 from <http://www.jcie.or.jp/civilnet/monitor/8.html>.
- Japan NPO Center n.d. *The law to promote specified non-profit activities (NPO law)*. Retrieved 30 April 2003 from <http://www.jnpoc.ne.jp/English/answers/answers.html>.
- Japan Times*, The 14 June 2001. *NPOs rising but still short on cash: Expert*. Retrieved 16 June 2003 from <http://www.japantimes.co.jp/cgi-bin/getarticle.pl5?nn20010614b1.htm>.
- Japan Times*, The 25 April 2002. *Isahaya gates open for seaweed probe*. Retrieved 23 January 2004 from <http://www.japantimes.co.jp/cgi-bin/getarticle.pl5?nn20020425a2.htm>.
- Kellert, Stephen. 1991. 'Japanese perceptions of wildlife'. *Conservation Biology*, 5(3): 297–308.

THE NATURE CONSERVATION MOVEMENT IN POST-WAR JAPAN

- Knight, John 1997. 'A tale of two forests: reforestation discourse in Japan and beyond'. *The Journal of the Royal Anthropological Institute*, 3(4): 711–30.
- Knight, Cath 2004. *Veneration or destruction? Japanese ambivalence to nature, with special reference to nature conservation*. Unpublished Masters Thesis, University of Canterbury.
- Library of Congress, The 2002. *The Evolution of the Conservation Movement*. Retrieved 15 June 2004 from <http://memory.loc.gov/ammem/amrvhtml/>.
- Linden, Eugene 1989. 'Putting the heat on Japan – Accused of ravaging the world's forests and seas, Tokyo starts to clean up its act'. *Time*, 19 July.
- Mason, Robert 1999. 'Whither Japan's environmental movement? An assessment of problems and prospects at the national level'. *Pacific Affairs*, 72(2): 187–207.
- McCormack, Gavan 1996. *The Emptiness of Japanese Affluence*. St Leonards, N.S.W.: Allen & Unwin.
- McKean, Margaret 1981. *Environmental Protest and Citizen Politics in Japan*. Berkeley: University of California Press.
- McGill, Douglas 1992. 'Nature in the mind of Japan'. *The Sunday New York Times Magazine*, 4 October 4.
- Menju, Toshihiro 2002. *Historical background and current issues for NGOs in Japan*. Paper presented at UK-Japan NGO dialogue conference. 26–28 November 2002. Retrieved 29 April from http://www.japan-uk-ngolink.org/PDFs/conference/NGO_conferenceDay1_pm.pdf.
- Ministry of the Environment (Japan) n.d. *Encouraging Independent Environmental Conservation Activities by a Variety of Organizations*. Retrieved 24 March 2004 from <http://www.env.go.jp/en/org/pamph/07.pdf>.
- Ministry of the Environment (Japan) 2006. *Annual Report on the Environment in Japan*. Retrieved 20 June 2008 from <http://www.env.go.jp/en/wpaper/2006/index.html>.
- Morioka, Takashi 1997. 'Japan Driftnet Fishing'. *TED Case Studies*, 4(1). Retrieved 12 March 2004 from <http://www.american.edu/projects/mandala/TED/driftnet.htm>.
- Morris-Suzuki, Tessa 1998. *Re-Inventing Japan: Time, Space, Nation*. Armonk, N.Y.: M.E. Sharp.
- Murota, Yasuhiro 1985. 'Culture and the environment in Japan'. *Environmental Management*, 9(2): 105–12.
- Nakamura, Hajime 1964. *Ways of Thinking of Eastern Peoples: India, China, Tibet, Japan*. Honolulu: East-West Centre Press.
- Nakamura, Madoka 2000. 'Toward the public interest? Transformation of the policy community in Japan'. *NIRA (National Institute for Research Advancement) Review*, 7(4). Retrieved 30 April 2004 from <http://www.nira.go.jp/publ/review/2000autumn/nakamura.pdf>.
- Nature Conservation Society of Japan (Nihon Shizen Hogo Kyōkai) 2006. *NACS-J no tokuchō* (The characteristics of NACS-J). Retrieved 1 April 2007 from <http://www.nacsj.or.jp/nacsj/index.html>.
- Ogura, Yuka 2004. 'Volunteer Work'. *Asia Pacific Perspectives*, 2(2): 24.
- Ohkura, Yoshiko 2003. 'The roles and limitations of newspapers in environmental reporting. Case study: Isahaya Bay land reclamation project issue'. *Marine Pollution Bulletin*, 47: 237–245.

- Organisation for Economic Cooperation and Development, ed. 2002. *Environmental Performance Reviews: Japan*. Paris: OECD
- Oyadomari, Motoko 1989. 'The rise and fall of the nature conservation movement in Japan in relation to some cultural values'. *Environmental Management*, **13**(1): 23–33.
- Pepper, David 1996. *Modern Environmentalism: An Introduction*. Routledge: London.
- Schreurs, Miranda 1996. *International environmental negotiations, the state, and environmental NGOs in Japan*. Paper for Harrison Program on the Future Global Agenda, August 1996. Retrieved 16 May 2003 from <http://www.gdrc.org/ngo/jp-envi-ngo.html>.
- Schreurs, Miranda 2002. *Environmental Politics in Japan, Germany, and the United States*. Cambridge: Cambridge University Press.
- Stanley, Michael 2002. 'The death of wetland'. *Japan Inc*, November. Retrieved 1 August 2003 from <http://www.japaninc.net/article.php?articleID=933>.
- Statistics Bureau of Japan 2003a. Chapter 12: Labour. *Statistical Handbook of Japan*. Retrieved 12 August 2004 from http://www.stat.go.jp/english/data/handbook/c12cont.htm#cha12_4.
- Statistics Bureau of Japan 2003b. *Statistical Handbook of Japan*. Retrieved 19 May 2004 from <http://www.stat.go.jp/data/kokusei/2000/kihon1/00/zuhyou/a001.xls>.
- Strong, Kenneth 1977. *Ox Against the Storm: A Biography of Tanaka Shozo, Japan's Conservationist Pioneer*. Vancouver: University of British Columbia Press.
- Sutherland, Mary and Britton, D. Guyver 1980. *National Parks of Japan*. Tokyo: Kodansha International.
- Tanaka Akira 2001. 'Changing ecological assessment and mitigation in Japan'. *Built Environment*, **27**(1): 35–41.
- Watanabe, Masao 1974. 'The Conception of nature in Japanese culture'. *Science*, **183**: 279–282.
- Watts, Jonathan 2001. 'Seaweed dries up in Japan'. *Guardian Unlimited*, 8 February. Retrieved 12 December 2001 from <http://www.guardian.co.uk/elsewhere/journalist/story/0,7792,435489,00.html>.
- Yasuda Yoshinori 1992. *Nihon bunka no fūdo (The climate and geography of Japanese culture)*. Tokyo: Asakura Shoten.