Ritsumeikan Journal of Asia Pacific Studies

Volume 31, November 2012

The *Ritsumeikan Journal of Asia Pacific Studies* is published by the Ritsumeikan Center for Asia Pacific Studies (RCAPS) at:
Ritsumeikan Asia Pacific University (APU), 1-1 Jumonjibaru, Beppu, Oita 874-8577, Japan
Telephone: (+81) 977-78-1134; Fax: (+81) 977-78-1135
E-mail address: rcaps @ apu.ac.jp

List of Editorial Board Members

It has been our goal to improve and enhance the quality of the articles published in the *Ritsumeikan Journal of Asia Pacific Studies*, and probably nothing plays such an important role in doing so as reviews provided by peer reviewers in a related field of study who are active researchers in the field themselves. Each article in this issue was reviewed by at least one reviewer before it was finally approved for publication. Some articles were reviewed by two reviewers, and for one article three reviewers were consulted. We would like to formally thank the reviewers and let them know how much we appreciate the help and assistance we have received through their constructive reviews and suggestions to the editor, which were transmitted to the corresponding author and/or directly followed by the editorial team.

The following academicians helped review the manuscripts submitted to this issue of the *Ritsumeikan Journal of Asia Pacific Studies*, and are listed here in alphabetical order by given name:

Alastair S. Macdonald, Professor, Glasgow School of Art
Behrooz Asgari, Associate Professor, Ritsumeikan Asia Pacific University
Edgar A. Porter, Professor, Ritsumeikan Asia Pacific University
Hideki Fuchinoue, Associate Professor, Ritsumeikan Asia Pacific University
Ken Arii, Associate Professor, Ritsumeikan Asia Pacific University
Nader Ghotbi, Professor, Ritsumeikan Asia Pacific University
Steven B. Rothman, Associate Professor, Ritsumeikan Asia Pacific University

There are some academic subjects that may be better understood or related to in the context of the native language shared by both the author and the intended audience. APU, being located in Japan and as a bilingual university, cannot ignore the significance of some articles written in Japanese. However, no Japanese manuscript was submitted to us for possible publication for this issue of the journal. Despite that, we would like to remind our readers that we welcome a limited number of Japanese papers. Such papers should have comprehensive abstracts written in English, and will be reviewed by a Japanese reviewer in the field and our editor of Japanese manuscripts.

Editor's Note

The 31st volume of the *Ritsumeikan Journal of Asia Pacific Studies* is being published with a few changes to improve both its academic quality and its appearance. There has been an attempt to redefine the mission of the journal as a platform to publish academic papers over issues related to the Asia Pacific region, including the peoples, societies and cultures, the environment, as well as business and trade, economic growth and development, politics and peace studies, and other academic areas related to Asia Pacific. We have also recognized the in-house need for a peer-reviewed journal at Ritsumeikan Asia Pacific University (APU) to support the academic development of our graduate students and other affiliated researchers. Although we did not follow the strict policy of a peer-reviewed journal, each and every paper has been scrutinized by at least one academician with a reasonable record of research in the related field of study; some articles needed to be reviewed by more than one reviewer, and the suggestions were transmitted to the author and followed until they were implemented.

Another change was to provide a classification for the types of articles that were approved for publication. This is a well-recognized concept in research publications which emphasizes the methodology and material used for research; original research through primary data, versus review of other researchers' works and through secondary data, is one example. In this issue we have marked each of the accepted articles as either "Original Research", "Review", "Historical Perspective", or "Commentary". However, the order of appearance of the articles is based on the dates they were approved for publication. This is because we upload an online copy of each accepted paper onto our website as soon as it is approved and prepared for publication. There are eleven papers in this issue of the 31st volume, with four papers recognized as original research, five papers recognized as review, one as a historical perspective, and one as a commentary. As for the subjects, three papers are about the environment, four papers are related to business and economics, three papers are in the field of politics and/or international relations, and one is in the area of public health management. We hope that we can offer an even wider range of subjects in the coming issues, and to do this we rely on your contributions and networks.

Therefore, I would like to invite more researchers, faculty members and graduate students with an interest in the Asia Pacific, at Ritsumeikan APU as well as other schools in and outside Japan, to contribute to us. You can submit your original manuscript for possible publication, or volunteer to assist as a reviewer, or simply provide us with your constructive opinions and suggestions how to improve the quality of this journal. Our aim is to serve a larger and wider community of academic readers of research articles about the Asia Pacific region, so you can even simply promote and recommend this journal to your peers, colleagues and friends. Thank you!

Nader Ghotbi
Chief Editor

REVIEW:

Japan's wildlife management: actors and policies

Yae Sano[1]

Abstract

Japanese political actors face difficult challenges in the management of wildlife in Japan. There are various interest groups who influence wildlife management, and evidence suggests that in many cases agricultural interests rather than environmental interests tend to dominate the policymaking process. A strong policy bias in favor of the interests of farmers has resulted in the adoption of suboptimal conservation policies. Although some citizen groups in favor of nature conservation are gradually exerting some influence over these policies, they are not unified. This situation has left politicians with rather weak incentives to increase their environmental credentials, while incentives to support the demands of the agricultural lobby remain strong.

Keywords: Wildlife management, Nuisance control, Conservation policy, Political actors, Japan

Introduction

Japanese people are increasingly coming into contact with wild animals such as deer, monkeys and wild boars, which often cause large damages to agriculture. Some wildlife, such as bears, poses a direct threat to people, occasionally causing bodily injury and sometimes even human death. Somewhat sensationally, the Japanese media outlets have picked up on this trend and are excited to provide reports on a lone bear or deer wandering into a village or, increasingly, into larger towns as well.

Preventing property damage and human injury and death is becoming an increasingly important policy concern for both the national and local governments. As animal habitats become smaller and scarcer, this is likely to provide an even greater source of worry in the near future. However, while preserving the welfare of communities and individuals is perhaps the primary consideration of the government at all levels, there is a growing recognition that preservation of biodiversity and the natural environment are also important policy objectives. Populations of certain species of wildlife in some areas of Japan, such as the Asian black bears in Shikoku and Chugoku areas, are endangered, while the numbers of other wildlife species in some areas of Japan are increasing. Examples of the latter trend include *shika* deer in most parts of the country and wild boars in Kanto, Chubu, Shikoku, Kyushu and Okinawa (Biodiversity Center of Japan, 2004). A difficult challenge for the Japanese government is how to balance the demands of rural communities and agricultural interest groups for the elimination of the threats from wild animals, with the demands of conservation groups and an increasingly environmentally aware segment of the general population to conserve the Japanese wildlife.

In terms of Japan's wildlife management policy, the well-known support of agricultural interests rather than environmental interests by the Liberal Democratic Party (LDP) dominated the policymaking process for over five decades until their defeat in the 2009 elections. As a result, a strong policy bias already exists in favor of the interests of local farmers in remote areas, resulting in a suboptimal conservation policy. The agricultural constituency has been much more powerful than those in favor of nature conservation throughout the postwar Japanese history, and this is reflected in terms of public policy. The Democratic Party of Japan (DPJ), the current administration, has also fundamentally followed the LDP's line in supporting agricultural interests the evidence of which can be seen in the massive difference in the requested budgets for the fiscal year 2011 by the two government ministries for comparable

[1] College of Asia Pacific Studies, Ritsumeikan Asia Pacific University, Beppu city, Japan e-mail: ysano@apu.ac.jp

purposes. The Ministry of Agriculture, Forestry and Fisheries (MAFF) allocated 11.2 billion yen of its total requested budget of 2,278 billion yen specifically to save agriculture from wildlife damage, while the Ministry of the Environment allocated a sum of 118 million yen from a much smaller budget of 207 billion yen for projects mitigating human nuisance. Although some citizen groups in favor of nature conservation have gradually increased their influence over policy-making in recent years, environmental credentials for Japanese politicians are not in priority. Thus, it appears that politicians have rather weak incentives to increase their support for environmental issues while maintaining strong incentives to support the demands of the agricultural lobby. The policy implications are clear – what happens to the natural environment when agricultural interests dominate the policymaking process?

Methodology

This paper discusses the challenges faced by Japanese political actors involved in the management of wildlife in Japan. Using documentary evidence from government reports, the scientific literature, publications by non-governmental organizations (NGOs) and the media, I have examined how various interest groups that are influential in wildlife management are attempting to follow their sometimes competing objectives through public policy. The analysis of this paper depends on written materials that are publicly accessible. These include research reports, meeting minutes, budget documents and census data released by the national government agencies as well as reports, statements, and magazine articles produced by political associations and NGOs.

The government agencies concerned with wildlife management are the Ministry of the Environment which is responsible for nature conservation and MAFF which has administrative authority over agriculture, forestry and fisheries. The political associations and NGOs documents of which are used in this analysis are all organized at the national level. They include the Central Union of Agricultural Cooperatives, the National Association of Towns and Villages, LDP's National Union for the Promotion of Rural Communities, the Nature Conservation Society of Japan, the WWF Japan and the Wild Bird Society of Japan. These sources provided comprehensive data and information in order to examine various interest groups that are influential in public policy for wildlife management. Although the methodology used in this paper is primarily descriptive, it may provide a significant contribution to a policy area that has not been widely studied by the scholars of public policy in Japan.

Discussion

1. Human – wildlife conflicts in Japan

Damage caused by wildlife to agricultural crops has rapidly increased since the 1980s. Figure 1 shows the recent trend of agricultural damage caused by four representative medium-to-large size terrestrial mammal species. Among these, *shika* deer, wild boar and monkeys are considered the three largest nuisances to agriculture. In particular, damage caused by *shika* deer is rapidly increasing; the total damage in the fiscal year (FY) 2010 was worth 7,750 million yen over an area of 691,000 ha. They also have a substantial impact on the ecosystems of 16 out of 28 national parks , 13 of which demonstrate degradation of vegetation within the natural park area (Ministry of the Environment, 2005).

Despite the fact that their damage to crops is relatively low compared to other animals, bears are considered a nuisance because of the danger they pose to humans. Figure 2 presents the number of injuries and deaths caused by Asian black bears in the past 30 years. While the number of deaths has remained fairly constant (maximum three people per year), with more bears coming into contact with people, the number of injuries has increased twenty-eight times, from five cases in 1980 to 140 in 2006, and 142 in 2010.

While it is generally accepted that approximately 20% of all mammal species and slightly more than 10% of all bird species face the threat of becoming endangered (Ministry of the Environment, 2007), a comparison of the results from the National Surveys on the Natural Environment of 1978 and 2003-2005 surprisingly suggests that all seven representative large-medium size terrestrial mammal species in Japan (*shika* deer, wild boars, monkeys, raccoon dogs, Japanese serow, Asian black bears and brown bears) have expanded their distribution over the past two decades (Ministry of the Environment, 2005). While a scientific study has suggested a relationship between the number of bear encounters and the growth of wild acorns, one of their main sources of food in the mountains (Oka, 2006), three major causes were identified by the Ministry of the Environment for the expansion of wildlife distributions (Japan Wildlife Research Center, 2007): decrease in number of hunters, changes in forest habitats, and changes in land use and social structure in rural communities.

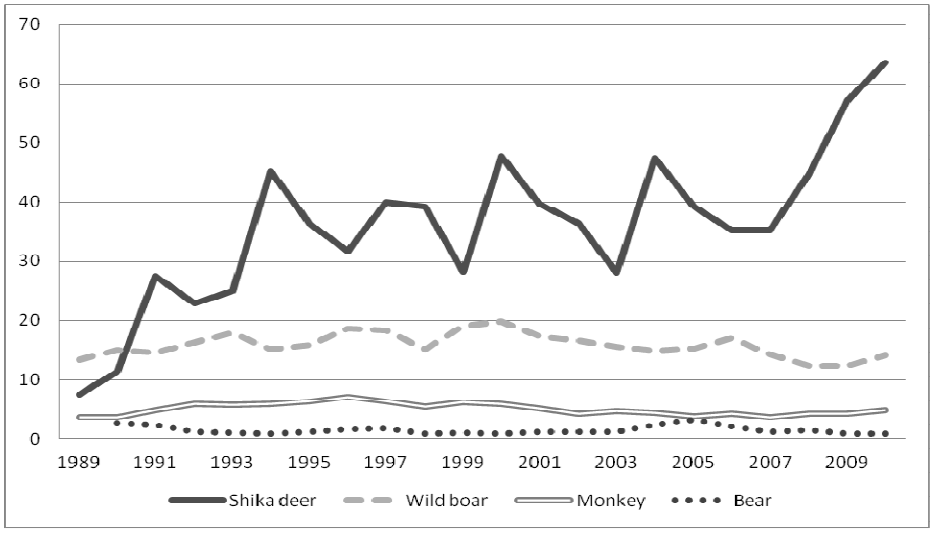


Figure 1. Wildlife Damage to Agriculture (1989-2009) (Thousand hectares)
Source: Ministry of Agriculture, Forestry and Fisheries

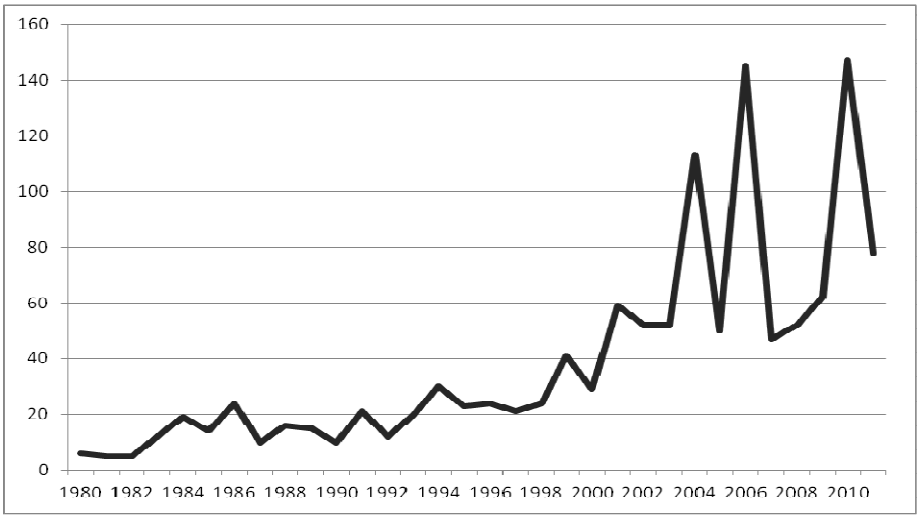


Figure 2. Human accidents with Asian black bear (number of persons)
Source: Japan Wildlife Research Center (2007), Ministry of the Environment

a. Decrease in number of hunters

While an argument exists that the increase in the number of *shika* deer may be due to the extinction of their major predator, the Japanese wolf, in 1905, the general consensus is that the decreasing number of hunters is the main factor. Figure 3 shows the trend in the number of registered hunters. While the number of trap users is slightly increasing, the number of licenses issued for gun use, which includes recreational hunters, has steadily decreased since the 1970s. This is attributed to a cumbersome procedure for registration that requires annual inspection of guns and license renewal every three years (The Kii Minpou, 13 December 2006). The Japan Hunters Association (Dainihon Ryoyukai, 2002) has identified further possible reasons for the decline, including: growing demands for wildlife protection among the general public; a dominant urban lifestyle that does not require hunting as a means of subsistence and livelihood; a prevailing negative image of hunting; and the lack of public awareness on hunting as a means of wildlife management and balancing wildlife with human livelihood.

b. Changes in forest habitat

Until the early 1960s, the forest products industry was a major manufacturing sector, particularly in Japan's mountainous areas. Loggers, truckers, and other workers frequently entered forests, causing noise and activity that alerted wildlife to take precautions against humans. This conditioned them to avoid unnecessary contact with people, and so they kept away from rural communities. However, since its peak in the late 1970s, domestic forestry production has steadily decreased as overseas imports have increased. In particular, after the use of fuel wood was replaced by oil and gas, forests and woods near local communities have been abandoned. As a result, several species of wildlife have lost their fear of humans.

c. Changes in land use and social structure in rural communities

Increase of abandoned farmlands due to aging and depopulation of rural areas often create conditions favorable for wildlife that are considered a reason for the expansion of the distribution of bears and other animals (Ministry of the Environment, 2004). For example, grass in abandoned rice fields makes excellent material for nest making by wild boars (Tokida et al., 2004). Abandoned farmland has increased from 131,000 ha in 1975 to 217,000 ha in 1990, and to 386,000 ha in 2005 (Census of Agriculture and Forestry). Among 1,317 municipalities, 485 of them reported damage caused by wildlife to property or humans in abandoned farmland (Ministry of Agriculture, Forestry and Fisheries, 1995). Abandoned farmland is farmland with no plantation in the last year and no plan for plantation in the coming few years.

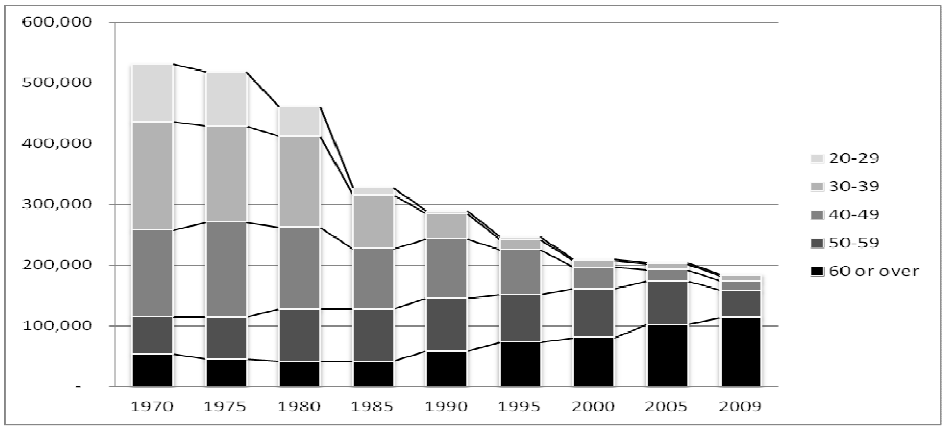


Figure 3. Trend in hunters' numbers and age structure (person)
Source: Ministry of the Environment

As the damage caused by wildlife increases, the demands of rural communities and agricultural interests to eliminate the animals are growing. In order to meet these demands, killing nuisance animals is legally allowed, but requires permission. Culling started in 1999 as a measure to control the population of particular species according to prefectural wildlife management plans. As a result, the number of animals killed has increased as shown in Table 1. Among these, populations of *shika* deer, wild boar and monkeys are considered to be too high, and most scientists agree with the need for population control. However, in contrast, some species in some areas are considered to be in a critical condition (Fujimori et al., 1999). In particular, populations of Asian black bears, especially in Shikoku and Chugoku, face the danger of extinction due to isolation from other populations. Furthermore, as the fertility level of bears is lower than that of the other three species, scientists fear that the annual killing of over 2,000 of an estimated population of 10,000 individuals may lead to a critical status for this species in Japan.

2. Key actors in wildlife management

a. Ministry of the Environment

The history of environmental administration in Japan started with enactments of national legislations on pollution control. While the national park system was authorized in 1931, environmental protection was not a major political concern until serious large scale pollution problems were revealed as a negative outcome of postwar years of rapid economic growth. After court decisions supporting pollution victims were made in the 1960s and the public gained awareness on the environment, the extraordinary diet session of November 1970 passed 14 pollution related laws and Prime Minister Eisaku Sato's cabinet established the Environmental Agency in 1971 in order to coordinate and regulate pollution and administrate nature conservation. Wildlife management has been under the jurisdiction of the Environmental Agency since its inception in 1971. Although the Agency was upgraded to the ministry status in 2001, it remains weak compared to other bureaucracies. Figure 4 shows the national budget allocation of 11 ministries and one agency for the fiscal year of 2011. It is not difficult to see that the budget allocated to the Ministry of the Environment was the smallest of all organizations.

Table 1. Hunting and nuisance killing of four problematic species (upper row**:** Hunting; lower row: Nuisance)

	Wild boar	***Shika* deer**	**Monkey**	**Asian black bear**
1980	69,300	18,200		1,000
	12,300	2,000	2,700	1,300
1985	51,000	21,300		1,000
	9,200	4,400	5,100	1,500
1990	57,600	31,300		1,000
	12,600	10,700	4,900	700
1995	71,400	56,300		800
	16,400	25,500	5,800	800
2000	100,600	90,700		800
	47,700	46,700	9,700	1,200
2005	139,900	120,600		700
	76,400	69,600	9,300	1,100
2009	150,900	156,700		400
	148,900	154,800	16,200	1,500

(individual per year)

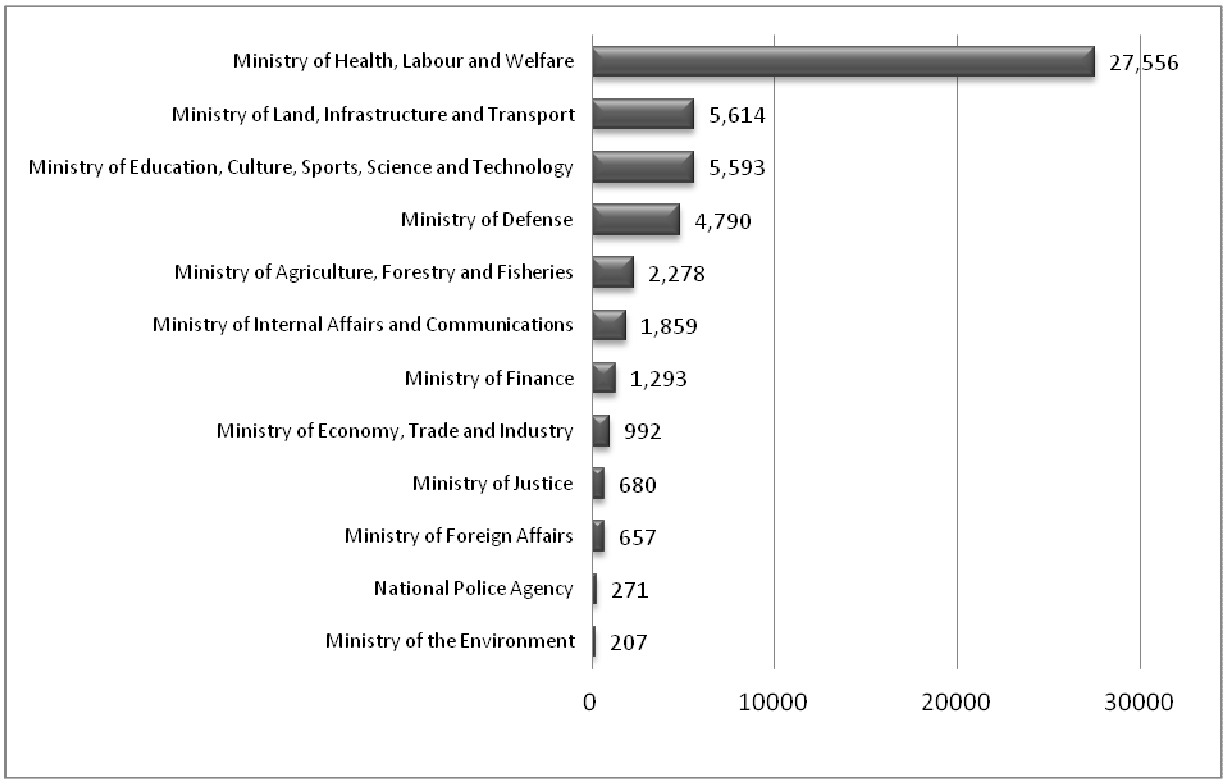


Figure 4. National budget allocation of 2011 (in billion yen)
Source: Ministry of Finance

The nature of the Ministry of Environment's operations has also reduced its authority in environmental administration. The Environmental Agency was initially created to coordinate those environmental matters formally administered by different national agencies. Initially, 504 staff members from 12 different ministries and agencies were appointed to the new agency. The critical head positions of each division were held by staff on rotation from other ministries. Should the interests of the Environment Agency and the interests of these staff members' "home" ministry ever conflict, they were unlikely to take the side of the Environment Agency (Oyadomari, 1989). It was only in 2001 that the first 'born-and-bred' official from the Environmental Agency was appointed to head the Natural Environment Bureau.

b. The Ministry of Agriculture, Forestry and Fisheries (MAFF)

Prior to the establishment of the Environmental Agency in 1971, the Ministry of Agriculture and Forestry administered hunting activities as a means of controlling animals considered to be a nuisance to agriculture. While MAFF no longer has legislative authority over the management of wildlife, it still appears to have some influence in policymaking. The goal of the Ministry is to protect the agricultural, forestry and fisheries production from potentially harmful animals. It may be interesting to know that the term 'nuisance' rather than 'wildlife management' is used in the titles of the Ministry's projects and documents. The Ministry is a member of the Inter-Agency Network on Conservation and Management of Wildlife, which is administered by the Ministry of the Environment. The Inter-division Network on Promoting Nuisance Control was established in 1996 among four divisions of MAFF, the Agriculture, Forestry and Fisheries Council, Forestry Agency, and Fisheries Agency.

c. Prefectures and municipalities

After the 1999 revision of the Wildlife Protection and Hunting Law, 47 prefectural governments were given jurisdiction over wildlife management. According to a survey conducted by MAFF (Committee on Countering Wildlife Damage to Agriculture, 2005), thirty-nine prefectures had prepared a total of 65 Specified Wildlife Conservation and Management Plans. The other 8 prefectures did not have such plans due to a lack of expertise and budget. This was improved by April 2011, when 46 prefectures had a total of 117 Plans.

By 2002, 41 prefectures had further delegated authority (for example, issuing hunting permits for the nuisance control of certain species) to municipal governments, including cities, towns and villages (Ministry of the Environment, 2002). Some municipalities are actively engaged in activities for nuisance control, such as appointing resident leaders for nuisance control, promoting hunting licenses, raising awareness of residents and farmers, and promoting the commercial use of meat from hunted animals (Committee on Countering Wildlife Damage to Agriculture, 2005). The Special Measures Act on Countering Nuisance Wildlife of 2008 provides a legal basis for devolution of nuisance control to municipalities. Municipalities with nuisance management plans receive national subsidies for controlling nuisance, such as hiring hunters or setting up fences.

d. Politicians

Although MAFF does not have authority over wildlife management, politicians supported by farmers' groups have demonstrated strong interests in and influence over policy making in wildlife management. In particular, the Liberal Democratic Party's (LDP) Alliance for Nuisance Wildlife Control was created on 7 Dec 1995 by 20 diet members to gain financial, technical and other support in reducing wildlife damage to agriculture (Agriculture News 9 Dec 1995 and 23 July 1997). The members are called *Nogyo-zoku* [agricultural group], and come mainly from regions where agriculture and forestry industries have suffered damage caused by nuisance wildlife. Accordingly, the national government started a project on nuisance control in 1996 in coordination with MAFF, the Forestry Agency, and the Environment Agency. In December 1997, the Alliance prepared a model proposal for revising the Wildlife Protection and Hunting Law in order to relax hunting regulations and to introduce culling to control animal populations.

In March 2007, in cooperation with the LDP's Committee on the Promotion of Rural Communities, the Alliance set up the Group for Countering Nuisance Wildlife. They prepared recommendations including further delegation of authority to municipalities in making management plans for the population control of nuisance animals (LDP Group for Countering Nuisance Wildlife, 2007). This turned into a bill proposing the Special Measures Act on Countering Nuisance Wildlife that was submitted to the Diet for an extraordinary session in autumn 2007 and came into force in February 2008. In February 2011, LDP members who share specific interests in nuisance control organized a new group called the Alliance of Urgent Action for Game Hunting. The major objective of the Alliance was to amend the nuisance related laws. Their proposal of August 26, 2011 included relaxing the registration procedures of rifles in order to increase the hunters' number and stipulating national subsidies to local governments to cover their nuisance control costs.

e. Interest groups

Conservation NGOs: Oyadomari (1989) suggests that citizen-based conservation groups in Japan are politically weak and not influential in policy making due to a lack of funds and advocacy skills. More than 20 years ever since, the total number of such groups has increased, but the same problem remains. A survey on environmental NGOs conducted by

the Environmental Restoration and Conservation Agency in 2008 [2] revealed that 2,267 environmental organizations/groups belong to the category known in Japan as *hojin* (juridical person, a legal entity), including *zaidan hojin* (foundation juridical entity), *shadan hojin* (corporate juridical entity) and *NPO hojin* (incorporated nonprofit organization). Meanwhile, 2,265 voluntary groups are not accredited at the grass-roots level. Adequate finances seem to be a common constraint for the activities of these groups: while 17.8% have an annual budget of over 10 million yen (3.9% of them over 100 million per year), 51% of all the environmental organizations/groups have an annual budget less than 1 million yen. From among the 4,532 organizations/groups, 1,792 (40%) work in the field of nature conservation. Some information about the major NGOs that are advocates for the conservation of nature and wildlife is displayed in Table 2.

Table 2. Major NGOs advocating wildlife management

	Establishment	**Status**	**Annual Revenue**
The Nature Conservation Society of Japan	1951	*Zaidan hojin*	308 million yen (FY2009)
WWF Japan	1971	*Zaidan hojin*	857 million yen (FY2009)
Wild Bird Society of Japan	1934	*Zaidan hojin*	854 million yen (FY2010)

When the Environmental Agency proposed the 1999 revision of the Wildlife Protection and Hunting Law, conservation NGOs strongly opposed the proposal, particularly the clause delegating authority to prefectural governments (Murakami and Ohi, 2007). The Wild Bird Society of Japan (1997) feared that the relaxation of hunting regulations combined with the delegation of authority to prefectural governments would result in overhunting. The Nature Conservation Society of Japan (1999) argues that while prefectural governments lack an incentive to develop breeding plans for rare species, they have high incentives for preparing hunting plans to reduce damage to agriculture. Their suggested solution was either to return to the national government from prefectural governments the authority for managing certain species, such as the Asian black bear, or to create a subsidy system for the prefectural government when developing conservation plans.

The "Network to Establish a Veritable Wildlife Protection Law" was organized by the above NGOs and other citizen groups as a direct counteraction to the 1999 revision of the Wildlife Protection and Hunting Law, and continues wildlife protection advocacy. The Network argues that Japan should change its current perspective about wildlife which focuses too much on nuisance control and should look to more comprehensive wildlife management from a biodiversity perspective. Members also argue that a new law is necessary (Network to Establish a Veritable Wildlife Protection Law, 2003).

Agriculture interest groups: Numerous groups promote the interests of the agricultural and forestry sectors. Agricultural co-operatives made an appeal to the Ministry of the Environment in November 2006 to get assistance for farmers and their villages where the impact of nuisance wildlife was serious, while still acknowledging the importance of wildlife protection (Central Union of Agricultural Co-operatives, 2007). In its annual appeals for national budgetary planning and policy measures, the National Association of Towns and Villages consistently requests that the national government take necessary measures to prevent wildlife damage to agriculture, forestry and fisheries (for example, National Association of Towns and Villages, 2007).

[2] A questionnaire was distributed to 16,137 civil societies and 4,532 responses were listed as environmental NGOs (http://www.erca.go.jp/jfge/shosai; accessed 01/05/2012).

The National Union for the Promotion of Rural Communities, consisting of 176 LDP diet members, 697 municipalities and 41 prefectural governments, has shown continuous interest in wildlife management. Their Internet homepage (http://www.sanson.or.jp/index12.html) contains a great deal of information on wildlife management, such as laws, policies, scientific information (for example, the ecology of animals) and successful cases of damage prevention. Although the information they disseminate appears as balanced between conservation interests and damage reduction, it is interesting to note that the Union counts all wildlife related government budget as allocated for the purpose of enhancing rural communities. This could imply that wildlife management is not simply an environmental issue, nor even an agricultural issue, but rather one of the means for rural communities to capture a larger share of the national budget.

f. Relevant laws and policies

Laws: The major laws concerning wildlife management in Japan are: the Wildlife Protection and Appropriate Hunting Law, and the Law for Conservation of Endangered Species of Wild Fauna and Flora (Species Conservation Law). For our purposes, the first is the more important of the two because it is directed towards the control of wildlife that cause damage to property and human life, while the latter concerns programs for the protection and management of rare species of wild fauna and flora. To simplify, the Wildlife Protection law covers only game animals (mammals and birds) while the Species Conservation Law is the core legislation for the comprehensive management of rare species from the perspective of biodiversity conservation.

The Wildlife Protection and Appropriate Hunting Law has its origin in the Hunting Law of 1895. It was amended and renamed the Wildlife Protection in 1963, with further major revisions made in June 1999. Murakami (2000) critically reviewed the Law before 1999 arguing that it was problematic because the law: (1) specified the hunting permit system as only a control measure for nuisance animals with no overall goal set to manage wildlife; (2) does not require assessment of control effects; (3) does not require a transparent decision making process in nuisance control and does not involve stakeholders; and (4) is concerned only about individual cases of damage but not larger scale management.

Some of these problems were alleviated by the 1999 revisions. A noteworthy point in the revisions was the introduction of the concept of 'management' of wildlife, emphasizing conservation and management based on science. The 1999 revision introduced the Specified Hunting Method Prohibited Zone System to exercise the control of wildlife through zoning as the first attempt to proactively control wildlife populations. Another important point of the revisions was that the management goal was to be achieved by delegating authority over wildlife management, monitoring and evaluation of the management to the prefectural government, and to loosen regulations promoting hunting. With a view to promote decentralization after the enactment of the Promoting Decentralization Acts of 1999, authority over wildlife management has been largely delegated to local governments at the prefecture level or, in some cases, the municipality level. While conservation groups opposed the delegation, conservation scientists supported it (Murakami and Ohi, 2007). The Law was renamed again in July 2002 as the Wildlife Protection and Appropriate Hunting Law. The conservation of biodiversity through the protection of wildlife was added as one of the objectives of the Law as a response to Japan's accession to the Convention on Biological Diversity on 28 May 1993. Further revisions were made in 2006 to reinforce the propagation of wildlife species in the Wildlife Protection Areas.

Although not the main legislation in wildlife management, two other laws include articles favoring agriculture, forestry and fisheries in relation to nature conservation and wildlife protection. The Nature Conservation Law of 1972 requires the government to take into consideration the stability and welfare of residents engaged in agriculture, forestry

and fisheries in areas designated specifically for conserving its environment (Article 35 and Article 46). The Law for the Advancement of Mountain Villages of 1965 was revised in March 2005 by adding a section to Article 21 requiring the national government and local governments to take appropriate measures for the prevention of wildlife damage in order to secure the welfare of the residents and to enhance agriculture, forestry and fisheries. The Special Measures Act on Countering Nuisance Wildlife, which specifically concerns nuisance control, entered into force in February 2008. This Act is under jurisdiction of MAFF and favors the benefits of agriculture and forestry rather than wildlife.

Policies: Since 1963, Wildlife Protection Project Plans are prepared every five years to regulate and plan protected areas, the distribution of hunting permits, and awareness programs. The Plans used to be prepared by the Ministry of the Environment; after decentralization in 1999, prefectural governments have been responsible for planning according to the guidelines set by the Ministry to provide general administrative guidelines for wildlife management. Since April 2007, the 10th Wildlife Protection Project is being implemented. The Plan designates Wildlife Protection Areas and bans all hunting activities within the prescribed areas.

For some species, the prefectural government can develop a Specified Wildlife Conservation and Management Plan to take special measures to enhance their population in cases where a species is considered endangered or reduce the population when a species causes damage to human property. Monitoring is required to evaluate the effectiveness and appropriateness of the plan. While the plans are expected to balance the demands of conservationists and the agricultural lobby, and take local conditions into consideration, they have the potential to favor agriculture since a governor has the authority to reduce protection regulations such as hunting bans set by the Minister of the Environment when a Specified Wildlife Conservation and Management Plan is being prepared for his/her prefecture.

Different types of funding are made available to prefectural governments by the national government for the purpose of wildlife management. The Ministry of the Environment provides a fund of 5 million yen or more to a prefecture, under its Specified Wildlife Conservation and Management Plan, so that they can implement activities for enhancing rare species and/or reducing a population in areas of increased nuisance wildlife. The former activities include plantations for habitat creation, *in-situ* breeding and biological and ecological research, while the latter includes implementing culls and setting up fences around farmlands.

Financial opportunities to support the agriculture sector are more diverse and larger in amount. For the fiscal year of 2007, MAFF had a budget of 180 million yen specifically to reduce wildlife damage to agriculture. While damage mapping and research projects for technology development were being implemented, a 44 million yen grant from the above budget was given to publicly selected groups concerned with the reduction of nuisance animals. Eighteen of the 20 groups awarded were municipality organized councils for nuisance control, consisting of representatives from farmers' cooperatives, hunters' groups and rangers employed by the municipal government. One farmer's cooperative and a single nonprofit group were also selected as recipients. The grant is to be used to organize and train 'nuisance busters' and to purchase necessary equipment for capturing wildlife.

In addition to the above budget, part of the budget for other projects is also used for subsidies to prevent agricultural damage from wildlife. For example, as one of 13 policies supported by Subsidies for Strengthening Agriculture with a budget of 405 billion, subsidies are provided to individual farmers to set up electric fences around their farmland. The total number of projects that receive a portion of this budget for nuisance control is 17, with the total amount of 235,861 million yen under MAFF. Five of these 17 projects provide subsidies to improve facilities for preventing damage to agriculture, forestry and fisheries, while another four support research to improve prevention measures. MAFF also has prepared manuals to reduce crop damage and has registered 99 advisors with knowledge and

expertise on wildlife and the reduction of its damage. Furthermore, agriculture is protected by the Agricultural Insurance Scheme which was established in 1947 and based on the Law on Agricultural Disaster Compensation. The damage to agriculture by wildlife is compensated through mutual relief, with the national government responsible for approximately 50% of indemnities.

In 2007, MAFF requested a much larger budget than before to control nuisance wildlife and to support farmers trying to prevent damage in FY 2008. They proposed a new project entitled the 'Comprehensive Project for Prevention of Wildlife Damage' and requested 2.8 billion yen for its budget in order to implement different types of activities, such as culling, the purchase of hunting equipment, establishing facilities for the treatment of hunted animals, fence installation, caring for deciduous forests as habitat creation, and research and experiments on wildlife control.

As Figure 5 shows, specifically allocated budgets to the Ministry of Agriculture for wildlife control started only from FY 2006. Part of the budget was for projects with a more general title, such as the project for the restoration and enhancement of agricultural villages but had been used as a financial source of subsidies to prevent wildlife damage. MAFF requested a massive budget for FY 2008 that far exceeded the tiny sums of the past eight years of budgets allocated to the Ministry of the Environment. This was the outcome of the Special Measures Act on Countering Nuisance Wildlife in 2008, which provided legal grounds on financial support from national government to local municipalities for nuisance control. Furthermore, MAFF received a budget of 11.3 billion yen in FY 2011 to cover the increased subsidies to local governments for nuisance control. A large proportion of a budget of 9.5 billion continued to be allocated to MAFF for FY 2012.

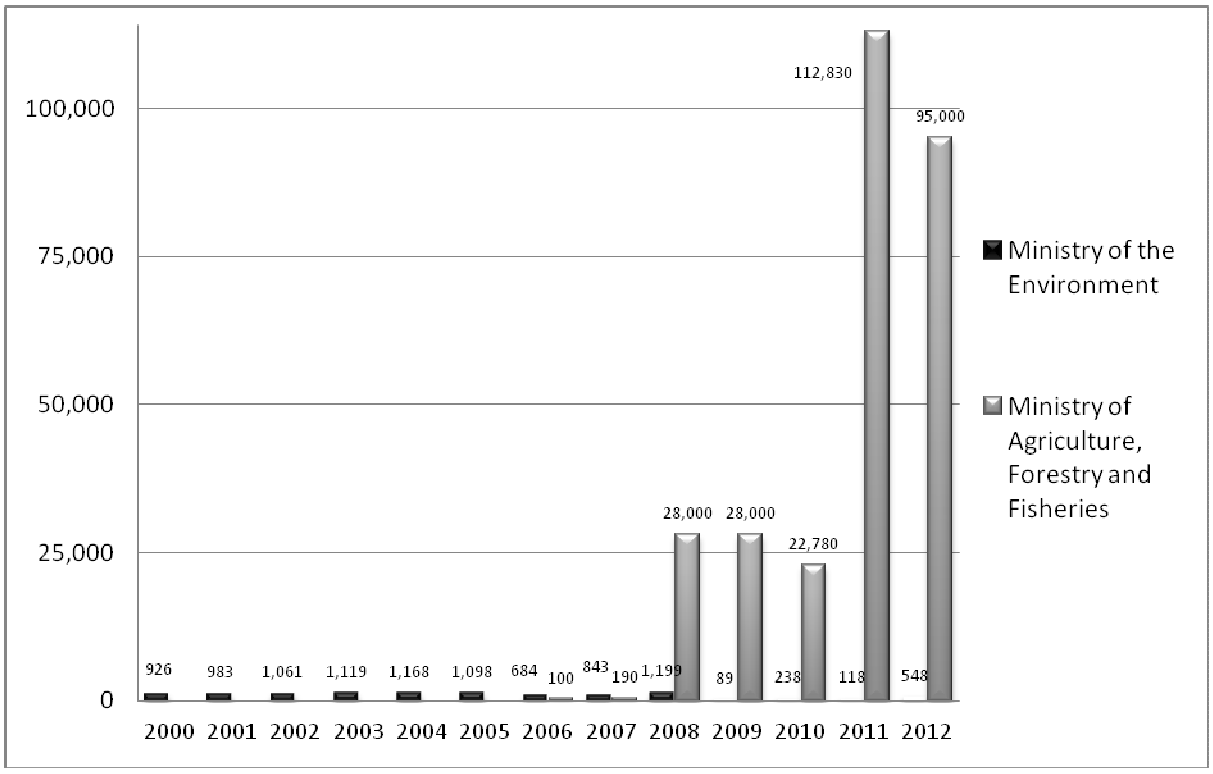


Figure 5: Budget specified for game management and nuisance control (million yen)
Source: Budget documents of Ministry of the Environment and Ministry of Agriculture, Forestry and Fisheries

Conclusion

Our review of the series of documents and the historical trend suggests that agricultural interests dominate Japan's wildlife management policymaking process, mainly through MAFF. It also appears that a strong and long-term support for LDP has shaped a policy bias that clearly favors the interests of local residents, especially farmers in rural areas, and has resulted in policies that give little consideration to the benefits of environmental conservation. However, this conflict should not be seen as a black and white battle between those who wish to protect agriculture and those who wish to protect nature. The Ministry of the Environment, conservation scientists, and even many conservation groups agree that the control of wildlife populations is necessary to balance human welfare with wildlife welfare, as well as to protect fragile ecosystems. Living in a small mountainous island nation, wildlife species have developed their habits and life cycles in close relationship with humans. Meanwhile, humans have influenced the natural environment through urban development, along with agriculture, forestry and hunting. Throughout Japan's history, this intervention has contributed to the building of an imaginary border between wildlife and people, albeit one with a certain level of tension.

Trying to maintain biodiversity, while protecting the interests of those most affected in rural areas, requires policies that involve a vast array of interests and levels of government. This is an area of future research that demands great attention and one that until now has been seriously understudied. Furthermore, the implications of how Japan manages its wildlife may be useful for all countries that have large rural communities with declining natural habitats where wildlife is coming into increasing contact with humans. The rapid changes in the economy and social structure of Japan since the 1960s, and the little understood changes this has caused in the natural environment, have resulted in the disruption of the delicate balance between wildlife and humans. How Japan deals with this serious challenge depends on the result of the convergence of policies that favor conservation with policies that favor local interests, if it is to succeed.

References

Anonymous. 2006. Shuryo hunter gensho [Reduction in hunters]. *The Kii Minpou*, 13 December 2006.

Biodiversity Center of Japan 2004. Dai 6 kai shizen kankyo hozen kisochosa, honyurui bunpu chosa houkokusyo [Report on mammal distribution: the 6th National Surveys on the Natural Environment]. Tokyo: Japan Wildlife Reseach Center.

Central Union of Agricultural Co-Operatives 2007. Annual report: 1 April 2006 to 31 March 2007. Tokyo.

Committee on Countering Wildlife Damage to Agriculture, Forestry and Fisheries 2005. Chojyu niyoru norin suisangyo higai taisaku ni kansuru kentokai houkokusyo [Report on meeting for countering wildlife damage to agriculture, forestry and fisheries]. Tokyo: Ministry of Agriculture, Forestry and Fisheries.

Dainihon Ryoyukai 2002. Syuryo ryoyukai no kasseika taisaku kentou houkokusyo [Report on promoting hunting and hunting association]. Tokyo.

Fujimori, Takao, Masatoshi Yui & Nobuo Ishii 1999. *Shinrin ni okeru yaseiseibutsu no hogokanri* [*Wildlife management in forest*] Tokyo, Nihon Ringyo Chosakai.

Japan Wildlife Research Center 2007. Kumarui Shutsubotsu Manual [Manual for encountering bears]. Tokyo: Ministry of the Environment [unpublished report].

LDP Group for Countering Nuisance Wildlife 2007. Norin gyogyo yugai chojyu taisaku no bappon kyoka ni kansuru kinkyu teigen [A proposal for fundamental measures to counter wildlife damage to agriculture, forestry and fisheries]. Tokyo.

Ministry of Agriculture, Forestry and Fisheries 1995. Census of Agriculture and Forestry.

Ministry of the Environment 2002. Dai 5 kai yasei chojyu hogokannri kentokai, chojyu no hogo to syuryo no tekiseika niokeru gyosei no yakuwari [The 5th meeting of committee on conservation and management of wildlife: roles of government in wildlife management and promotion of appropriate hunting]. Tokyo.

Ministry of the Environment 2004. Ministry of the Environment Press Release 10 Dec 2004.

Ministry of the Environment 2005. Chuo Kankyo Shingikai Yaseiseibutsu Bukai, Dai 1 kai Chojyu Hogokanri syoiinkai, Chojyu hogo oyobi Shuryo no tekiseika ni kakaru genjyo to kadai [Sub-group on Management of Game Species, Wildlife Group, Central Environmental Council: Discussion paper for 1st meeting 'Status of Wildlife Protection and Appropriate Hunting. Tokyo.

Ministry of the Environment 2007. Kankyo hakusho [White Paper: Annual Report on the Environment and the Sound Material-Cycle Society in Japan 2007. Tokyo.

Murakami & Ohi 2007. Tokutei chojyu hogo kanri keikaku no genjyo to kadai [Status of Specific Wildlife Conservation and Management Plan]. *Mammalogical Society of Japan*.

Murakami, Okimasa 2000. The effectiveness of amendment (Law No. 160 of 1999) on Wildlife Protetion and Hunting Law. *Seibutsu Kagaku,* 52**,** 132-140.

National Association of Towns and Villages 2007. Heisei 24 nendo kuni no yosan hensei narabini sesaku ni kansuru yobo [A request for national budgeting for the fiscal year of 2008].

Network to Establish a Veritable Wildlife Protection Law 2003. A statement of request to establish Wildlife Protection Law, June 2003. Tokyo.

Oka, Teruki 2006. Regional concurrence in the number of culled Asiatic black bears, *Ursus thibetanus*. *Mammal Study,* 31**,** 79-85.

Oyadomari, Motoko 1989. The rise and fall of the nature conservation movement in Japan in relation to some cultural values. *Environmental Management,* 13**,** 23-33.

The Nature Conservation Society of Japan 1999. Dai 8 ji chojyu hogo jigyo keikaku sakutei kijyun kaitei soan ni taisuru iken [A statement of an opinion on draft guidelines for the 8th Wildlife Conservation and Management Project Plan]. Tokyo.

Tokida, Kunihiko, Nobuo Kanzaki & Yuji Kodera 2004. Toshi to chusankanchiiki ni okeru hito to yasei chojyu no kyozon no tameno higaiboshi oyobi kotaigun kanri no hosaku ni kansuru kenkyu (II) [A study on reduction of wildlife damage and population control for coexistence of human and wildlife in cities and rural areas (II)] *Research on management of Japanese wild boar in rural areas [Chusankanchiiki niokeru nihon inoshishi kanri ni kansuru kenkyu]*. Tokyo: Ministry of the Environment.

Wild Bird Society of Japan 1997. Chojyu hogoho kaisei no ugoki ni tsuite [Revisions to the Wildlife Protection Law]. *Yacho,* 605**,** 43.

ORIGINAL RESEARCH:

Patient satisfaction and service quality perception at district hospitals in Mongolia

Odgerel Chimed-Ochir [1]

Abstract

Nowadays, consideration of patient satisfaction is an integral part of hospital management across the world and also an essential necessity for healthcare providers. In Mongolia, patient satisfaction is considered a major criterion of quality; however, related data has not been formally collected and published to help with the improvement of the healthcare service quality. Misunderstanding of patients' needs has led to an underutilization of the existing facilities and hindered the overall development of the health system. A challenging issue for healthcare providers is to realize what elements of patients' perception significantly influence on patient satisfaction. Therefore a patient centred study was conducted to identify the service quality perceptions that significantly influenced patient satisfaction in the context of district hospitals in Mongolia. Several elements from the patients' service quality perception were evaluated, and elements which had a significant influence on patient satisfaction were identified. The implications and direction for further research are discussed.

Keywords: District hospitals, Healthcare service quality, Hospital management, Mongolia, Patient perception, Patient satisfaction

Introduction

Issues related to healthcare quality are crucial to any health system anywhere in the world. Many researchers have associated the quality of healthcare with patients' expectations and perceptions of quality, stating that "the quality of services is the ability to meet the customers'/patients' expectation" (Pui-Mun Lee, 2006). Evans & Lindsay (1996) defined the quality of healthcare service as "all characteristics of the service related to its ability to satisfy the given needs of its customers". Therefore, a survey of patients' opinions regarding the provided service is one of the main tools to measure the quality of healthcare services. There is a general agreement that patient satisfaction is an essential component of service quality (Säilä, 2008; Ruyter, 1997, Andaleeb, 2001).

Saia et al. argue that to some degree the effectiveness of healthcare depends on the patients' satisfaction with the provided services. Supporting this view, many studies allege that satisfied patients are more inclined to follow the advice given by doctors, to provide medically relevant information to the provider, and to continue using medical services (Andaleeb, 2000; Andaleeb, 2007).

In Mongolia, the technical aspects of healthcare such as appropriateness of diagnosis and treatment used to be the main target of healthcare service quality. In other words, the quality of healthcare services was solely defined through a provider-based approach. However, upon the reform of the health system in the late 1990s, the concept of patient-oriented services was introduced. Nevertheless, the quality assurance system still focused its attention on the technical aspects of care rather than interpersonal aspects such as communication with patients, willingness to help patients, timeliness and accuracy of services. Although patient satisfaction is now considered a major criterion of quality, this view has still not been reflected in actual plans to improve the healthcare service quality. Misunderstanding of patients' needs has thus led to an underutilization of existing facilities and hindered the overall development of the health system in Mongolia. Nowadays, consideration of patient satisfaction is an integral part of hospital management across the world (Smith, n.d.) and also an essential requirement for providers of healthcare (Choi, 2005). It is also a challenging issue for healthcare providers to realize what elements of patients' perception significantly influence on patient satisfaction.

[1] Health Project, Millennium Challenge Account (MCA)-Mongolia, Ulaanbaatar, Mongolia e-mail: odko_ch@yahoo.com

Currently, the healthcare service system in Mongolia is characterized by three levels of healthcare services built on the principle of delivering equitable, accessible and quality healthcare services for every person. Family clinics called Family Group Practices are responsible for the primary level of healthcare services. District hospitals which were the targets of our study provide the secondary level of healthcare services to the whole population of Ulaanbaatar city, the capital city of Mongolia. However, district hospitals have not been able to play a gate-keeping role for the inpatients services of tertiary care, as originally planned, and this has resulted in an overload of the latter hospitals.

In 2008, 81.7% of the total health expenditure was spent for inpatient services (Government of Mongolia, 2008). Even though the rate of bypassing district hospitals is high, the average occupancy rate in district hospitals is also very high. It might be that many patients who could be treated at home are being admitted to district hospitals in order to fully occupy the beds (Ministry of Health, 2008). If more attention is paid towards the quality of healthcare services at district hospitals, the rate of bypassing the secondary level to the overloaded tertiary care as well as the number of unnecessary admissions to district hospitals can be decreased. If so, the health expenditure on inpatient services can be reduced and overall, the hospital system can be managed in a more cost-effective manner.

As such, an examination of the patients' satisfaction with services provided in district hospitals could be a good starting point for a transition to patient oriented services and also an effective management of the hospital admission system. Therefore, our study focused on an examination of the patients' perceptions that significantly influence their overall satisfaction with healthcare services provided at the district hospitals of Ulaanbaatar city, Mongolia.

Methodology

The study covers three district hospitals out of nine district hospitals in Ulaanbaatar, namely, Chingeltei District Hospital, Sukhbaatar District Hospital and Bayanzurkh District Hospital. Only primary data were collected from in-patients of the three district hospitals between 1 August, 2009 and 1 November, 2009. Data collectors visited the hospitals two times with an interval of ten days in order to fill questionnaires from newly admitted patients; the 10 day interval was chosen because the average length of stay in the district hospital was 9-10 days (Government of Mongolia, 2008).

The in-patients were individually asked to answer the questionnaires. During each visit, patients were randomly chosen to participate in the study from the list of patients. The list of patients was divided into groups of five and every 5^{th} patient was asked to participate in the study. In cases in which the approached patient did not consent to participate in the study, the researchers would move to the next patient. Due to time constraints, it was not possible to interview more than 6 or 7 patients per day.

Patients eligible for the interview were adults between 18-75 years old who stayed more than 3 days in hospital and were admitted in the department of internal medicine and neurology. The questionnaire consisted of 29 questions with a close similarity to SERVQUAL questionnaire. Items were rated on a 7-point Likert scale varying from strongly disagree (1) to strongly agree (7). Overall satisfaction was rated on a 5 point Likert scale ranging from 1 (very dissatisfied) to 5 (very satisfied).

The original plan was to include a sample of approximately 153 patients, given an alpha error rate of 0.05, power of 0.8 and a postulated value of 4. Stata 11 statistical software was used to calculate the sample size. The mean score of 3.66 was used for the hypothesized overall satisfaction in accordance with a previous study conducted in Mongolia (L.Gerelmaa, 2009). Similarly, the standard deviation (SD) was assumed to be 1.5. Finally, 157 questionnaires were collected for data analysis.

To examine the associations among multiple variables related to satisfaction, regression methods can be useful including linear, logistic, and ordinal regression methods (Chen, 2004). However, ordinal regression is the preferred method to obtain valid results in order to study the effect of explanatory variables on all levels of the categorical response variable (Chen, 2004). Therefore, the ordinal regression model was chosen in the data analysis of our study. When using ordinal regression for analysis, logit and complementary log log (clog log) are the main link functions for building models; either method may be used and there are no specific criteria to prescribe which will be a better choice in a given situation. Researchers have therefore recommended using either of them and if the built model does not provide a good fit for the data, trying the alternative method to see if the new model fits the data better (Chen, 2004). Therefore, we used both link functions to find the best model.

Even though there were originally 29 explanatory variables in the study, eight of them were excluded from the model because of collinearity, as it would cause a loss in power and make interpretation more difficult**.** The tolerance and VIF, which stands for *variance inflation factor,* were tested to check collinearity. The "tolerance" is "an indication of the percent of variance in the predictor that cannot be accounted for by the other predictors, hence very small values indicate that a predictor is redundant, and values that are less than 0.10 may merit further investigation" (Chen, 2003). The VIF is 1 / tolerance and generally, a variable whose VIF value is larger than 10 merits further investigation (Chen, 2003).

In the data analysis of our study, the principle of parsimony was followed. Applying the principle of parsimony to the model is vital (Chen, 2004); what it means is that if fewer explanatory variables can explain the impact of the explained variable, the unnecessary variables should not be included in the regression model. If models contain too many explanatory variables, inaccurate results may appear and result in the instability of the model structure. Based on the principle of parsimony, a reduced model that meets the screening criteria such as assumption of parallel lines, goodness of fit of the model, higher R square and higher accuracy of classification of response categories should be considered as the ideal model. Therefore, a stepwise ordinal regression model was used to apply the principle of parsimony to the model.

Findings and Results

Table 1 shows the characteristics of the sample. The mean age of patients was 46.56 (SD=13.47). Female patients made up 54.8% and males 45.2% of all participants. Fifty one percent of all participants had been educated to high school level and the rest had received college or university education. About 3.2% of all patients were university students, 45.9% worked in either the public or private sector, and 51% were either unemployed or retired.

The number of admissions in hospital varied from patient to patient. Forty-one patients (26.1%) had been admitted for the first time. The highest number of admissions to the hospital among the study subjects was 15 times; the majority had been admitted to district hospitals for 2-7 times. About 17.8% of all participants had been staying from 4 to 5 days in hospital when the questionnaires were collected and 82.2% had been staying from 6 to 10 days. None of the participants of the study had been staying for more than 10 days in the hospital at the time of the interview.

The mean of overall satisfaction was 3.06, with SD of 1.06. Initially, the patients' overall satisfaction was examined through bivariate analysis by their demographic indicator, length of stay, number of admission in hospital and self reported health status. Overall satisfaction didn't significantly depend on age, gender, occupation, education of patients, length of stay in the hospital, self reported health status, and admitted hospitals. The patients admitted for the first time were less satisfied (M=2.56, SD=0.838) compared to other patients. Patients admitted in hospital for more

than 12 times were more satisfied (M=3.5, SD=0.707). The Kruskal-Wallis test showed that there was a statistically significant difference in the means of satisfaction between patients who were admitted in hospital for a different number of times (p=0.005); however, it is not possible to know which groups significantly differed from the other because the Kruskal-Wallis test is limited for post hoc test. Therefore, the interpretation is limited to the conclusion that at least one group significantly differs from another in terms of satisfaction level.

Table 1. The characteristics of the sample

		%
Age	20-30	14
	31-40	22.9
	41-50	23.6
	51-60	25.5
	61-70	8.3
	71 and over	5.7
Gender	Male	45.2
	Female	54.8
Occupation	Student in high school	0
	Student in university	3.2
	Work in public sector	17.2
	Work in private sector	28.7
	Unemployed	26.8
	Retired	24.2
	Other	0
Education	High school	51
	College	7
	University	42
Admitted hospitals	Bayanzurkh	31.8
	Chingeltei	33.8
	Sukhbaatar	34.4
No. of admissions	First time	26.1
	2-4 times	49.7
	5-7 times	12.1
	8-10 times	7
	11 and over	5.1
Length of stay in hospital	4-5 days	17.8
	6-10 days	82.2
Self reported health status	Mild	0.6
	Moderate	66.9
	Severe	32.5

Following the bivariate analysis, the ordinal regression method was used to construct a model over the association of patient satisfaction with the patients' perception of the provided healthcare services in district hospitals. In this study, the overall patient satisfaction was a response variable measured in an ordered, categorical, five- point Likert scale. The explanatory variables included background factors of patients such as age, gender, occupation and

educational status, the number of admissions, length of stay, the admitted hospital, self reported health status, and 29 items about patients' perception. Upon reduction of explanatory variables due to collinearity in the first model, a total number of 22 explanatory variables remained which included the number of admissions and 21 explanatory variables on perception of patients. The variable on the number of admissions was included because it was significantly associated with the overall satisfaction in bivariate analysis. In the first model, the collinearity diagnostic showed that VIF values for eight variables ranged between 10.454 and 24.418 which are greater than 10. Tolerance ranged between 0.041 and 0.096.

The result of the first model with logit function showed a significant difference in the associated regression coefficients throughout the response categories; this implied that the assumption of parallel lines was not valid for the built model (X^2=222.431 with df of 72, p<0.001). An assumption of parallel lines is necessary in order to use the link functions to build ordinal regression models; the analysis may be distorted and a wrong conclusion made unless this assumption can be made (McCullagh, 1980). Therefore the logit function could not to be used; the result from the first candidate model with logit link is not presented. Because the first model with logit link did not satisfy the assumption of parallel lines, a second model was built for ordinal regression using the clog log link. In the resulting model with clog log link function, the built model was shown to be fit according to the model fitting information (X^2(72) =445.781, P<0.001).

The first candidate model with clog-log function satisfied the assumption of parallel lines, and a variance (R^2) of 94.2 could be explained by the significant independent variables. This model showed that the overall satisfaction of the patients was significantly associated with eight explanatory variables regarding perception of patients: Provision of information on hospital service (p=0.004), comfortableness of patients' room (p=0.004), nurses' care (p=0.017), respectfulness of nurses (p=0.031), explanation of procedure done by nurses (p=0.015), routine/daily health check up by doctors (p=0.002), helpfulness of nurses (p=0.025) and attentiveness of doctors to listen to patients (p=0.019). These eight explanatory variables demonstrated positive regression coefficients, which implied that patients who had high perceptions on these variables would probably have a higher overall satisfaction (Table 2).

At the same time, we examined the accuracy of the model's classification results for the different categories of satisfaction responses. Using the cross tabulating function in SPSS, the predicted and actual responses were determined as demonstrated in Table 3.

The model demonstrated high prediction accuracy (2.5%+8.3%+32.5%+12.7%+6.9%=62.9%) for all five categories combined. In the first model built for ordinal regression, the model was fit (X^2(72) =445.781, P<0.001), pseudo R square was 94.2%, the assumption of parallel lines was satisfied and the accuracy of classification of response categories was 62.9%.

Since all perception items were associated with the overall satisfaction score in separate bivariate analyses, the variables which had the least effect in explaining the response variable were excluded one by one from the first model until exclusion of a variable decreased the amount of variation explained by the model. At the same time, model fitting and violation of assumption of parallel lines were tested for each model. In the process of model building, totally 11 of the perception items were excluded from the first model. Finally, the most parsimonious model was constructed with 12 explanatory variables. The final model with complementary clog log link function satisfied the assumption of parallel lines (p=1.0) and the model fitting information showed that the built model was fit (X^2(13) =445.781, P<0.001). Upon exclusion of several variables, variance of 94.2 was still explained by the significant independent variables.

Table 2. Clog-log link of Ordinal regression analysis for complete model

Perception items	Estimates	Standard Error	Significance level
Number of admission	0.048	0.039	0.219
DH has up to date and well maintained equipment.	0.176	0.151	0.244
Cleanliness and hygiene in district hospitals were excellent.	-0.362	0.222	0.104
The nurses and doctors were clean and well-groomed.	-0.019	0.2	0.925
The DH thoroughly provided information on hospital service	0.358	0.124	0.004
The patient room was comfortable enough	0.434	0.152	0.004
When I have a problem, DH showed willingness to solve it	-0.067	0.194	0.729
Doctors explained to me about my health condition, diagnosis and treatment in understandable way	-0.192	0.162	0.235
Nurses explained to me exactly when and what they were going to do	0.388	0.16	0.015
Doctor monitored my health status regularly/everyday	0.707	0.229	0.002
Doctors responded immediately when I called	-0.032	0.158	0.839
Nurses responded immediately when I called	0.008	0.152	0.956
Nurses were helpful to me.	0.503	0.224	0.025
Waiting time for admission was not so long /more than a week/	-0.226	0.183	0.217
Waiting time for daily service was not so long /more than 45 min/	0.529	0.289	0.067
I felt confident when receiving medical treatment.	-0.128	0.204	0.531
Doctors were respectful to me	0.262	0.161	0.104
Nurses were respectful to me	0.374	0.173	0.031
Nurses in district hospital were caring	0.476	0.199	0.017
Doctors in district hospital listened to me attentively	0.445	0.19	0.019
Doctor spent enough time to check and to advice to me	-0.008	0.169	0.96
Operating hours in district hospital was convenient to patients	0.014	0.245	0.955

Table 3. Predicted Response Category * OVSAT Crosstab (complete model)

			Actual response category					
			Very dissatisfied	Dissatisfied	Neutral	Satisfied	Very satisfied	Total
Predicted Response Category	Very dissatisfied	Count	4	0	0	0	0	4
		% of total	2.50%	0.00%	0.00%	0.00%	0.00%	2.50%
	Dissatisfied	Count	4	13	4	0	0	21
		% of total	2.50%	8.30%	2.50%	0.00%	0.00%	13.40%
	Neutral	Count	2	19	51	6	0	78
		% of total	1.30%	12.10%	32.50%	3.80%	0.00%	49.70%
	Satisfied	Count	0	1	12	20	1	34
		% of total	0.00%	0.60%	7.60%	12.70%	0.60%	21.70%
	Very satisfied	Count	0	0	0	5	15	20
		% of total	0.00%	0.00%	0.00%	3.20%	9.60%	12.70%
	Total	Count	10	33	67	31	16	157
		% of total	6.40%	21.00%	42.70%	19.70%	10.20%	100%

In the final model, the overall patient satisfaction was significantly associated with six explanatory variables regarding perception of patients: comfortableness of patients' room (p=0.007), explanation of procedure done by nurses (p=0.003), helpfulness of nurses (p<0.001), respectfulness of nurses (p=0.008), nurses' care (p=0.004), and attentiveness of doctors to listen to patients (p=0.016) (Table 4). These six significant explanatory variables showed positive regression coefficients, which implied that patients who had higher perceptions on these explanatory variables were probably those with a higher level of overall satisfaction. The estimates are in ordered log odd scale; for instance, for comfortableness of the patients' room, it can be said that for one unit increase in perception score on comfortableness of room, we would expect a 0.331 increase in the expected value of overall satisfaction in the log odds scale, provided that all other variables in the model are held constant.

Table 4. Parameter Estimates (Clog-log link of Ordinal regression analysis for parsimonious model)

Perception items	Estimates	Standard Error	Significance level
Number of admission	0.043	0.036	0.223
The patient room was comfortable enough	0.331	0.123	0.007
When I have a problem, DH showed willingness to solve it	-0.042	0.153	0.782
Nurses explained me exactly when and what they are going to do	0.332	0.111	0.003
Nurses responded immediately when I called	0.046	0.109	0.674
Nurses were helpful to me	0.679	0.189	0
I felt confident when receiving medical treatment	0.016	0.166	0.925
Doctors were respectful to me	0.217	0.128	0.091
Nurses were respectful to me	0.401	0.152	0.008
Nurses in district hospital were caring	0.497	0.171	0.004
Doctors in district hospital listened to me attentively	0.348	0.144	0.016

Table 5. Predicted Response Category * OVSAT Cross-tabulation (parsimonious model)

			Actual response category					
			Very dissatisfied	Dissatisfied	Neutral	Satisfied	Very satisfied	Total
Predicted Response Category	Very dissatisfied	Count	2	0	0	0	0	2
		% of total	1.30%	0.00%	0.00%	0.00%	0.00%	1.30%
	Dissatisfied	Count	6	11	4	0	0	21
		% of total	3.80%	7.00%	2.50%	0.00%	0.00%	13.40%
	Neutral	Count	2	21	56	10	0	89
		% of total	1.30%	13.40%	35.70%	6.40%	0.00%	56.70%
	Satisfied	Count	0	1	7	15	0	23
		% of total	0.00%	0.60%	4.50%	9.60%	0.00%	14.60%
	Very satisfied	Count	0	0	0	6	16	22
		% of total	0.00%	0.00%	0.00%	3.80%	10.20%	14.00%
	Total	Count	10	33	67	31	16	157
		% of total	6.40%	21.00%	42.70%	19.70%	10.20%	100.00%

We also tested the accuracy of the classification results for the satisfaction response categories in the final model (Table 5). The model demonstrated high prediction accuracy (1.3%+7%+35.7%+9.6%+10.2%=63.8%) for all five categories combined and it had a higher accuracy than in the first model. The reduced model with complementary log log link turned out to provide the best fit for the data; the model fitting values, accuracy of classification results and the application of the principle of parsimony confirmed that the results of our study would be presented within the best constructed model.

Discussion

This study addressed the significant elements of patient perception influencing their overall satisfaction with healthcare services provided at district hospitals in Ulaanbaatar city, Mongolia. The result of this study provides insights to both healthcare providers and hospital managers to improve patient satisfaction in the hospital environment in Mongolia. Theoretically, the model identified several elements of quality that influenced patient satisfaction in district hospitals in Mongolia.

The result of the study showed no significant relationship between age, gender, occupation, education, self reported health status, and the length of stay in hospital. This result is consistent with some studies; however, other studies found a significant relationship between age (Williams, 1991), gender (Cooper-Patrick, 1999), education (Zemencuk, 1996; Kareem, 1996) and patients' satisfaction as well as perceptions (Mummalaneni, 1995). This disparity between studies might be explained by the fact that patients' needs and desires (or wishes) are shaped by their socio-cultural system in which the healthcare system is founded (Calnan, 1988); it is also conceivable that the behavior of a healthcare consumer may vary from one culture/nation to another. Service satisfaction and dissatisfaction are indeed subject to cultural and personal issues. Thus, studies in different contexts can have some different results.

The number of admissions into the hospital had a significant influence on patient satisfaction. Patients who were admitted for the first time were less satisfied with their hospital experience than those who had been admitted more than 12 times. A possible reason is that patients who were admitted for the first time might be more critical of the healthcare services than those who had been admitted several times; perhaps, as people experience the healthcare services many times, they just become less critical of them. Other surveys have also suggested that people accustomed to staying in hospitals might have different opinions compared to patients who are unfamiliar with the hospital services (Carman, 2000). Patients who had been admitted several times might be accustomed to healthcare services provided by district hospitals. This may also reflect a more realistic opinion of people who had been admitted many times and how they felt toward the healthcare services that had been provided for them throughout their experiences.

Our final parsimonious regression model revealed six significant elements influencing patients' satisfaction. The comfort of the patients' room significantly influences their overall satisfaction. It is consistent with other studies; for instance, the study by Andaleeb (2001) found that tangibles such as comfort and a clean environment played a crucial role in patient satisfaction. Many other studies indicated the importance of tangible dimensions as a critical indicator of customer satisfaction (Parasuraman, 1985; Parasuraman, 1988; Carr-Hill, 1992).

Patients also influenced each other's comfort because there were many patients (six to eight patients) in one room. Once there are six to eight patients in one room, it is clear that patients may complain about their discomfort because patients are heterogeneous in terms of their lifestyle and behavior. For example, some patients go to bed early while others are used to sleeping late. In addition to that, food amount, quality and service in district hospitals are poor. Thus, almost every patient brings food from their home. There are no certain schedules for visits and a specific place to have a meal, and patients tend to eat their meal in their room. It leads to some difficulties and discomfort for other patients.

First, Mongolians usually share their food with others and they feel inconvenient to have a meal alone. It is also complicated for visitors to decide how much food to prepare. Second, Mongolian food is mostly prepared with meat and the smell is quite strong. Therefore, patients' rooms sometimes would turn into a canteen because of the smell. As such, establishing one room as a canteen to have a meal or to meet visitors in district hospitals might be very helpful.

It is also noteworthy that the results of the studies in developing countries such as Bangladesh and Vietnam found the importance of tangible dimensions for satisfaction with healthcare services, while patients of developed countries such as Singapore, Taiwan, South Korea, and USA are less sensitive for tangible elements such as comfort of the room, a clean hospital environment, and modern equipment. Our study results might be no exception for this. Generally speaking, a comfortable healthcare environment helps the patients relax and reduces their anxiety.

According to our results, the explanation of the procedure performed by nurses has a great influence on patient satisfaction. During a procedure, patients feel a lot of uncertainty regarding their insufficient knowledge about medical care; a detailed explanation by service providers will help them better understand how the service operates. Therefore, the provision of such information shouldn't be neglected in a hospital service setting.

Further, empathetic services such as nursing care, respectfulness and helpfulness of nurses had a significant influence on patients' overall satisfaction. Doctors' attentiveness also had a positive impact on satisfaction. Unfortunately, many healthcare providers in district hospitals seem to forget how important these issues can be to patients. Even though patients require doctors to pay attention to them, the estimates/parameters of the model imply that their satisfaction depends more on nursing elements; the coefficient estimate is higher (0.401-0.679) for nursing elements. Particularly, patients of the district hospital are more sensitive to nursing elements especially nursing care and they graded their service low. It can be explained that the number of patients per nurse is greater than per doctor and nurses are overworked because beds in district hospitals may be fully occupied. Moreover, in daily healthcare service patients experience nursing care more frequently than the doctor's care. This might be another reason that nursing care and respectfulness of nurses are perceived as low by patients. Other studies also agree that the relationship between staff and patients could lead to a greater customer satisfaction (Zifko-Baliga, 1997; Polluste, 2000; Ramsey, 1997; Kim, 2001).

Conclusion

Based on finding of the study, the following conclusions are drawn, which can be helpful for healthcare providers and hospital managers in respect with the allocation of efforts to maximize patient satisfaction and to improve the perceived quality of healthcare services:

1. Patients who had been admitted in hospital for the first time had lower perceptions on, and were less satisfied with the overall healthcare services. Patients who had been admitted more than 12 times had better perceptions regarding overall healthcare services and were more satisfied with service. No other background factors such as age, gender, education and occupation appeared to influence patient satisfaction.
2. Patient satisfaction significantly depended on empathetic services such as nursing care, respectfulness of nurses, helpfulness of nurses and attentiveness of doctors to patients. The level of comfort in the patients' room also had a great influence on patient satisfaction.

It is evident that the empathy dimension, which significantly influences patient satisfaction, shows a large quality gap; employee satisfaction in concert with patient satisfaction might be crucial because satisfied employees provide more empathetic services (Zeithaml, 1988).

Over time and as more variables are identified, it is possible to expand the standards in quality based on patients' needs and as such health service providers can provide services that are more in line with the patients' demands. However, no questionnaire can completely cover all the items that may be important in the patients' belief system, including their perceptions and expectations from the healthcare services. Therefore, qualitative methods may be used along with quantitative research to help capture a better understanding of the concept of healthcare quality. Well-managed healthcare systems rely on regular feedbacks from their patients and their immediate service providers, which are then monitored and used for the improvement of the healthcare service quality. Satisfaction scores can also be used to monitor and thereby improve the performance of the hospital staff.

References

Andaleeb, S., 2001. Service quality perceptions and patient satisfaction: a study of hospitals in a developing country. *Journal of Social Science & Medicine* 52(9): 1359-1370.

Andaleeb, S. S., 2000. Service quality in public and private hospitals in urban Bangladesh: a comparative study. *Health policy* 53: 25-37.

Andaleeb, S. S. S. N. K. S., 2007. Patient satisfaction with health care services in Bangladesh. *Health Policy and Planning* 22: 263-273.

Calnan, 1988. Towards a conceptual framework of lay evaluation of health care. *Journal of Social Science & Medicine* 27(9): 927-933.

Carman, J., 2000. Patient perceptions of service quality: combining the dimensions. *Journal of Services Marketing* 14(4): 337-352.

Carr-Hill, R., 1992. The measurement of patient satisfaction. *Journal of Public Health* 14(3): 236-249.

Chen, C. &. J. H., 2004. Using Ordinal Regression Model to Analyze Student Satisfaction Questionnaires.. *IR applications* 1: 1-12.

Chen, X. E. P. M. M. &. W. C., 2003. [Online; http://www.ats.ucla.edu/stat/spss/webbooks/reg/default.htm , accessed 1 May 2010].

Choi, K. H. L. C. K. &. S. L., 2005. The service quality dimensions and patient satisfaction relationships in South Korea: comparisons across gender, age and types of service. *Journal of Services Marketing* 19(3): 140-149.

Cooper-Patrick, L. e. a., 1999. Race, Gender, and Partnership in the Patient-Physician Relationship. *JAMA,* 282(6) 583-589.

Evans, J. & Lindsay, W., 1996. *The Management and Control of Quality.* Cincinnati: West Publishing Company.

Government of Mongolia, D. o. H., 2008. *Health indicators 2008,* Ulaanbaatar.

Kareem, A. A. A. A. &. W. G., 1996. Patient satisfaction in government health facilities in the state of Qatar.. *Journal of community health* 21: 349-358.

Kim, W. H. J. L. E., 2001. Effects of relationship marketing on repeat purchase and word of mouth. *Journal of Hospitality & Tourism Research* 25(3): 272-288.

L.Gerelmaa, 2009. *Study of patient satisfaction: Comparative analysis between public and private hospitals of Ulaanbaatar city. Master's thesis, Ritsumeikan Asia Pacific University.*

Ministry of Health. a. N. C. f. H. Development. *Health Indicators 2008,* Ulaanbaatar.

Mummalaneni, V. &. G. P., 1995. Mediators vs. moderators of patient satisfaction: the role of socio-demographic characteristics might be less significant than previously thought. *Journal of Health Care Marketing* 15: 16-23.

Parasuraman, A. B. L. &. Z. V. A., 1988. SERVQUAL: A Multiple-Item Scale for Measuring Consumer Perceptions of Service Quality. *Journal of Retaling* 1: 12-40.

Parasuraman, A. Z. V. &. B. L., 1985. A conceptual model of service quality and its implications for future research. *Journal of Marketing* 49(4): 41-50.

Polluste, K. K. R. &. L. M., 2000. Primary health care system in transition: the patient's experience. *International Journal for Quality in Health Care* 12: 503-509.

Pui-Mun Lee, P. K. D. N. G., 2006. Impact of deficient healthcare service quality. *The TQM Magazine* 18(6): 563-571.

Ramsey, R. &. S. R., 1997. Listening to your customers: the impact of perceived salesperson listening behavior on relationship outcomes. *Journal of the Academy of Marketing Science* 25: 127-137.

Ruyter, K. B. J. P. P., 1997. Merging service quality and service satisfaction. An empirical test of an integrative model. *Journal of Economic Psychology* 18: 387-406.

Säilä, T. M. E. K. M. A. P. K. M., 2008. Measuring patient assessments of the quality of outpatient care: a systematic review. *Journal of Evaluation in Clinical Practice* 14: 148-154.

Smith, M. M. E. (., n.d. *Developing a Tool to assess Client Satisfaction at District Hospitals,* South Africa: Health systems trust, Technical report 14.

Williams, S. &. C. M., 1991. Convergence and divergence: assessing criteria of consumer satisfaction across general practice, dental and hospital care settings. *Journal of Social Science & Medicine* 33(6): 707-716.

Zeithaml, V., 1988. Consumer perceptions of price, quality and value: a means-end model and synthesis of evidence. *Journal of Marketing* 52: 2-22.

Zemencuk, J. e. a., 1996. Patients‘ desires and expectations for medical care: a challenge to improving patient satisfaction. *American journal of medical quality* 14: 21-27.

Zifko-Baliga, G. M. &. K. R. F., 1997. Managing perceptions of hospital quality. *Marketing Health Services* 17(1): 28-35.

ORIGINAL RESEARCH:

Impact of foreign direct investment, trade openness, domestic demand and exchange rate on export performance in Bangladesh

Bishnu Kumar Adhikary[1]

Abstract

The impact of foreign direct investment (FDI), trade openness, domestic demand, and exchange rate on the export performance of Bangladesh is examined over the period of 1980-2009 using the vector error correction (VEC) model under the time series framework. The stationarity of the variables is checked both at the intercept and intercept plus trend regression forms under the ADF and PP stationarity tests. The Johansen-Juselius procedure is applied to test the cointegration relationship between variables. The VEC model is implemented on the intercept, and intercept plus trend cases. The empirical results trace a long-run equilibrium relationship between the variables. FDI is found to be an important factor in explaining the changes in exports both in the short run and long run. However, the study does not trace any significant causal relationship for the cases of trade openness, domestic demand and exchange rate. It is concluded that Bangladesh should formulate FDI-led polices to enhance its exports.

JEL classification: C33, F21, O16, O57

Keywords: Bangladesh, Foreign direct investment, Domestic demand, Exchange rate, Export, Time series study, Trade openness, Vector error correction (VEC) model

Introduction

During the past two decades, the participation of developing economies in world exports has increased considerably from 26.56% in 1990 to 32.54% in 2000, leveling off at 39.89% in 2007, while the same has decreased for the industrialized economies from 72.11% in 1990 to 58.95% in 2007 (Figure 1). The share of developing economies in the world foreign direct investment (FDI) inflows has also grown substantially over the last three decades, increasing from a minimum of 13.83% in 1980 to 48.93% in 2009, whereas the same index has decreased for developed economies from its peak at 86.13% in 1980 to 50.79% in 2009 (Figure 2). Therefore, I attempted to investigate whether the developing economies have relied on the FDI-led exports growth model to increase their stake in exports and FDI.

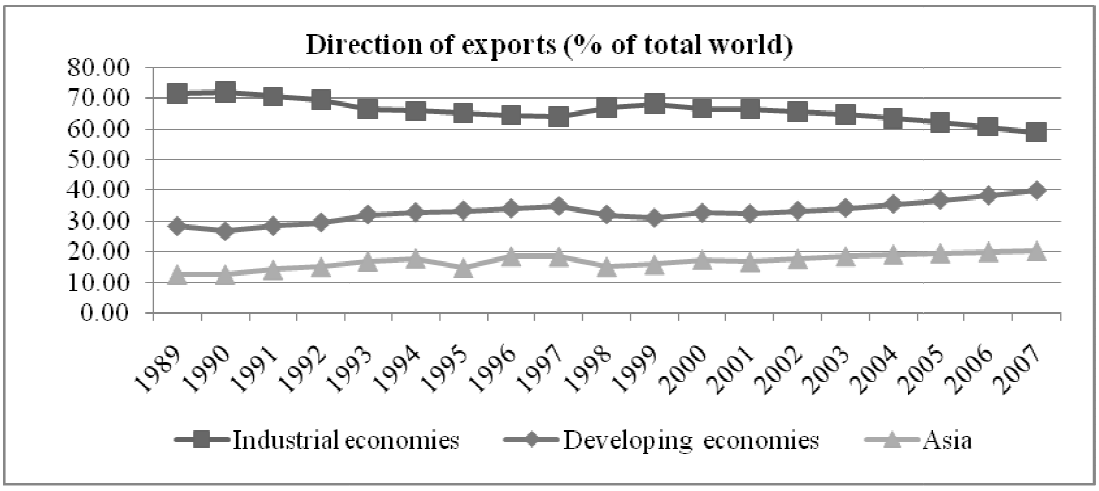


Figure 1: Direction of World Exports (1989-2007)

Source: author, using data of trade statistics year book, IMF 2007.

[1] College of International Management, Ritsumeikan Asia Pacific University, Beppu city, Japan e-mail: adhikary@apu.ac.jp

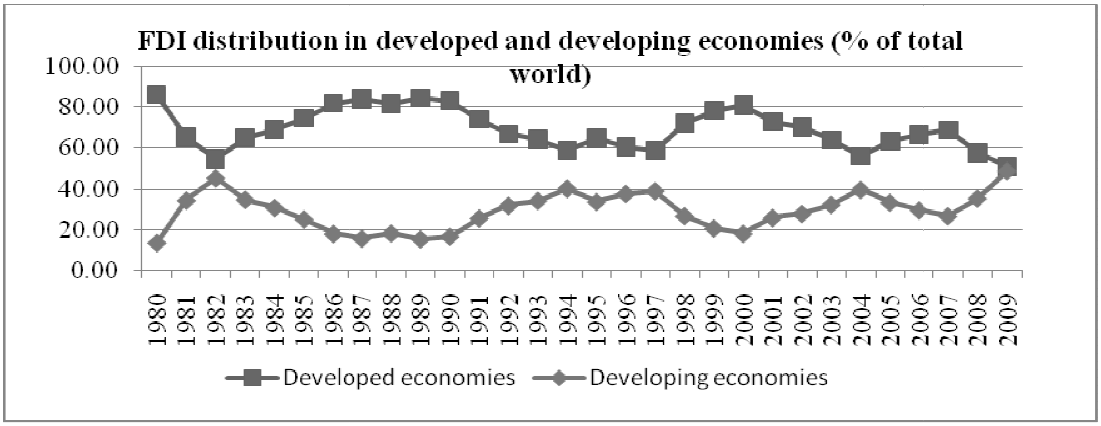


Figure 2: FDI Distribution between Developed and Developing Economies (1980-2009)
Source: author, using data from the WDI database, World Bank, 2010

Bangladesh, being a developing economy, has been no exception. Since the early 1980s, Bangladesh adopted the 'export-led growth' model by changing its import-substitution-led industrial growth model to resolve macroeconomic problems such as trade deficit, unemployment and a low foreign exchange reserve As a major vehicle of the export-led growth model, the government enacted the Foreign Private Investment (Promotion and Protection) Act in 1980 to provide a legal protection for FDI made in Bangladesh against state expropriation and nationalization. To boost export by attracting foreign capital, the government also established several Export Processing Zones (EPZs) in the 1980s to provide a congenial investment climate free from bureaucracy and institutional bottlenecks. Simultaneously, the government pursued greater trade liberalization policy by introducing various fiscal and non-fiscal incentives; these include an omission of tariff and non-tariff barriers in importing capital machinery, spare parts, raw and construction materials for the hundred percent export oriented industries; duty and tax free export facilities for the industries located in EPZs; cash incentives and export subsidies from five to twenty percent on the free on board (FOB) value of selected products; ten years tax exemptions for investment in EPZs, and five to seven years tax holiday for investment made other than EPZs. In addition, the government gradually lifted restrictions on repatriation of capital and profits, and unleashed almost all industrial sectors to foreigners investing independently or jointly with local partners (Adhikary 2011).These incentives together with a low labor cost structure and reasonable GDP growth rate (5% on average since 1990) have made Bangladesh a resilient and attractive investment destination for foreign investors since the late 1980s.

Figure 3 presents the decade-wise average performance of exports, FDI, trade openness, exchange rate and domestic demand in Bangladesh over the period of 1980-2009. It shows that the average exports (expressed as the value of exports over GDP) in Bangladesh increased from 5.24% in the 1980s to 16.99% in the 2000s, and the decade-wise average performance of FDI (expressed as a percentage of GDP) increased from 0.01% in the 1980s to 1.02% in the 2000s. Likewise, the average economic openness, measured by the trade over GDP, significantly increased during the previous three decades, from 19.23% in the 1980s to to 40.48% in the 2000s. On the other hand, the average domestic demand (measured by the government expenditure over GDP) has remained almost constant at 4.52% in the decades of the 1980s and the 1990s, although it increased slightly to 5.20% in the 2000s. Importantly, the relative strength of the domestic currency, Bangladeshi Taka (BDT), in terms of the US dollar decreased by almost two and a half times during the last three decades, from BDT 25.89 per dollar in the 1980s to BDT 62.33 in the 2000s. As a whole, the positive trend of FDI, exports, domestic demand, trade openness, and exchange rate confirms that Bangladesh has adopted an export-led growth model by encouraging FDI, opening up the domestic market, and devaluing its currency.

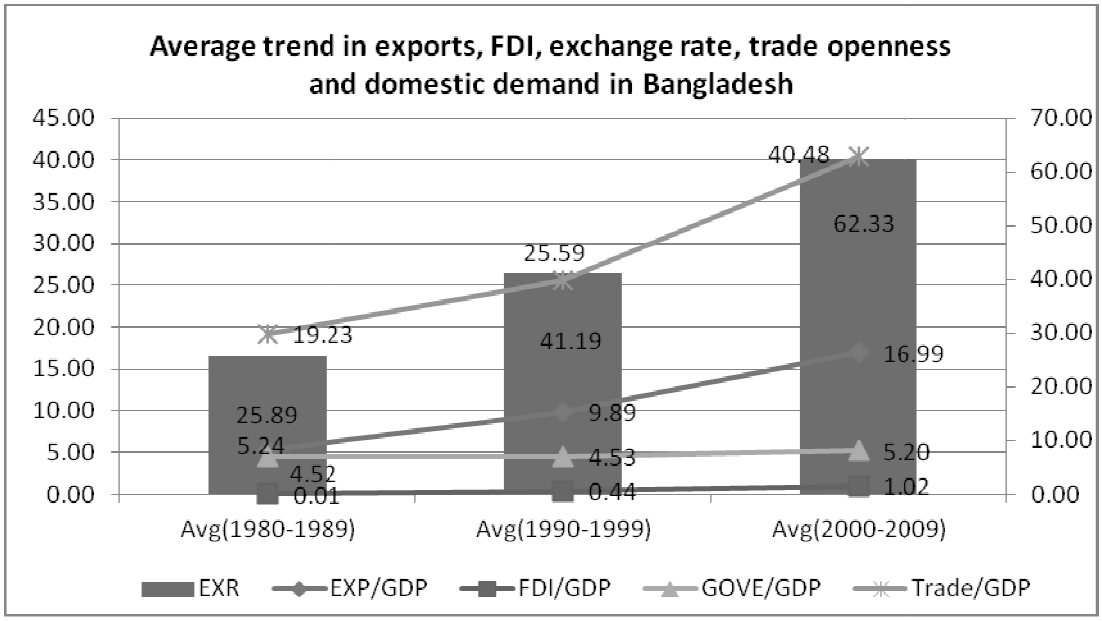


Figure 3: Decade-wise average trend in exports, FDI, exchange rate, trade openness, and domestic demand in Bangladesh. Source: author, using data from the WDI database, 2010

However, Figure 3 leaves two basic questions for investigation. First, is there a long-term equilibrium link between FDI, economic openness, exchange rate, domestic demand, and export performance in the context of Bangladesh? Second, is the link unidirectional or bi-directional? We have attempted to address these questions empirically.

The empirical work on the link between FDI, trade openness, exchange rate, domestic demand, and export is confounding. For instance, a positive relationship between trade openness and export performance was documented by Michealy et al. (1991), Weiss (1992), Santos-Paulino (2000), Ahmed (2000), Niemi (2001), and Babatunde (2009); while a negative link was reported by Agosin (1991), Greenaway and Sapsford (1994), Shafeuddin (1994), Moon (1997), Morrissey and Mold (2006). Likewise, a positive link between FDI and export was reported by Dritsaki et al. (2004), Sharma (2000), Liu et al. (2001), Xing (2006), Xuan and Xing (2008); whereas Sevensson (1996) documented a negative association between them. In addition, Petri and Plummer (1998) and Hsiao and Hsiao (2006) unveiled an insignificant relationship between them. Similarly, the relationship found between exchange rates and exports in empirical literature is controversial. For Instance, Bahmani- Oskooee and Ltaifa (1992), Arizi (1995), and Arize et al. (2000) reported a negative relationship between exchange rate volatility and exports performance; while Bailey et al. (1987), Assery and Peel (1991), and Abbott et al. (2001) did not trace any link between them; however, Wong and Tang (2007) documented a positive association. By the same token, ADB (2005) reported a negative association between exports and growth rate of domestic demand in the Southeast Asian countries, whereas Lai (2004) reported a short-run bilateral causal connection between them. Table 1 presents a summary of recent empirical studies that investigated the long-run relationship between FDI, trade openness, domestic demand, exchange rate, and exports using different estimation models. These studies also present conflicting results, as some authors traced a long-run equilibrium relationship in the variables, whereas others reported a very weak, or no relationship at all. Moreover, some authors documented a bi-directional causal relationship, whereas others reported unidirectional causality or no causal relationship in the variables of their studies.

Table 1: A Brief Summary of Recent Studies

Author(s) and Date	Variable Used	Country, Coverage and Method	Findings
Chimobi and Uchi, 2010	Gov't consumption, household consumption, real GDP, export	Nigeria; Annual data (1970-2005), VAR	• No long-run equilibrium relationship. • Export causes domestic demand • Bilateral causality between export and household consumption
Prasanna, 2010	Inward FDI, total manufactured exports, high technology manufactured exports, manufacturing value added	India ; Annual data (1991-92- 2006-07); OLS	FDI significantly influences exports
Martinez-Martin, 2010	FDI, exports, domestic income, world income and competitiveness.	Spain; Annual data (1993-2008); VECM	A positive Granger causality runs from FDI to exports in the long-run.
Duasa, 2009	Volume of exports and imports, REER, trade balance	Malaysia; Annual data (1999-2006); TAR & M-TAR	A long-run asymmetric cointegration exists between REER and exports.
Babatunde, 2009	Merchandise exports, REER, average tariff rate, exchange rate, imports of raw material	Sub-Saharan Africa; Annual Data (1980-2005); Panel fixed effect and random effect	REER stimulates exports
Njong, 2008	Real exports, real GDP, REER, import over total international trade, export over total international trade, lag exports, lag FDI stock	Cameroon; Annual data (1980-2003), AR(p)	FDI and REER significantly influence exports
Wong, 2008	GDP per capita, exports, private consumption, government consumption, Investment	ASEAN 5; Annual data (1960-1996), Error correction, Granger causality	• A long-run relationship exists between variables • Bidirectional Granger causality between exports and GDP; and private consumption and GDP per capita.
Mortaza &Das, 2007	FDI inflows, import and export over GDP, M2/GDP, literacy rate, domestic investment & inflation	Bangladesh, India, Pakistan, Sri Lanka, and Nepal; Annual Data (1980-2004); VAR , Panel fixed effect, and random effect	Unidirectional relationship between FDI, trade liberalization and economic growth for Bangladesh and Pakistan
Hsiao & Hsiao, 2006	Real FDI inflows, real GDP per capita, real exports	China, Korea, Hong Kong, Singapore, Taiwan, Malaysia, Thailand & the Philippines; Annual data (1986-2004); Panel VAR	Bidirectional causality between exports and GDP
Sahoo, 2006	FDI, world income growth, infrastructure index, domestic demand, exports, REER, GDP growth	Bangladesh, India, Pakistan, Sri Lanka, Nepal; annual data (1975-2003); Panel fixed effect	FDI positively influences exports.
Arize,1995	Log real exports, log REER, log real foreign income	USA; Monthly data (1971:2 – 1991:3); Error correction, ARCH, linear moment	• A long-run equilibrium relationship exists. • Exchange rates and exports are negatively associated

On a final note, empirical studies do not have consensus over the relationship between FDI, trade openness, domestic demand, exchange rate, and exports. In this respect, Chakrabarti (2001) and Hsiao and Hsiao (2006) report that these wide differences are primarily due to the authors' perspectives, sample selection, measurement of variables, inclusion of other

variables, econometric models, and analytical tools applied in their studies. Besides, the country-specific characteristics such as the degree of technological, economical, infrastructural, and institutional developments may be responsible for some of the controversial results. Thus, this paper aims at accumulating empirical knowledge by investigating the nexus between FDI, trade openness, domestic demand, exchange rate, and exports in the context of Bangladesh, which is a growing economy in South Asia.

Methodology

We have sought to trace the long-run equilibrium relationship between FDI, trade openness, domestic demand, exchange rate, and exports of Bangladesh over the period of 1980-2009 using a time series framework. In doing so, we have measured FDI as a percentage of GDP following Nath (2009), Asiedu (2002) and Tsai (1994). For the measurement of trade openness, a number of measures were used in empirical literature, including the trade volume over GDP, import over GDP, average tariff rate, total taxes on international trade, population densities, and so on. However, the data on tariffs and taxes on international trade was not available in the context of Bangladesh; and it was not logical to consider trade volume-related measures of openness for this study, as it uses exports as a dependent variable. Yanikkaya (2003) has argued that population density can be used as a measure of trade openness, as countries with higher densities tend to have more international contacts. Thus, I took the density of population (per square kilometer) as an indicator of trade openness, following Yanikkaya (2003), and Sachs and Warner (1995). Domestic demand was proxied by the government final consumption over GDP following Sahoo (2006). Considering the fact that Bangladesh conducts major exports in the US dollar, the exchange rate was indexed by Bangladeshi Taka (BDT) per US dollar. Finally, the export of goods and services as a percentage of GDP was the proxy to measure exports. All data was obtained from the database of World Development Indicators (World Bank) and the Direction of Trade Statistics (International Monetary Fund); and the sample covered thirty annual observations.

It is worthwhile to note that the data set of this study is not free from small sample bias, which may result in inefficient estimates of the parameters. One strategy to remove the small sample bias is to consider monthly, quarterly or semi-annual data. However, such forms of data for FDI were not available for Bangladesh before 1995. Also, Beck and Levine (2004) doubt that the use of quarterly data produces any better result than annual data. Therefore, I used annual observations from the year 1980 in order to cover the reform period of FDI, and I expected that thirty yearly observations would be reasonable for Bangladesh, which got independence in 1971.

The empirical estimation of the study proceeds as follows; it begins with checking the normality of distribution by invoking the Jarque–Bera test. Next, it proceeds to detect the presence of unit root under a univariate analysis by employing both the Augmented Dickey- Fuller (ADF) (following Dickey and Fuller 1981; Fuller 1996) and the Phillips-Perron (PP) tests (following Phillips 1986; Phillips and Perron 1988; Perron 1989). The advantage of the PP test over the ADF test is that the PP test takes into account the serial correlations by making corrections to the t-statistics of the coefficients of the lagged variables, not by adding the differenced term of the lagged variables (Miankhel et al. 2009). The unit root test was also conducted both at the intercept and intercept plus trend regression forms. In the event of stationarity of each variable at the level test, an Ordinary Least Square (OLS) regression would be run, as in equation 1, where EXPG = export of goods and services over GDP, FDIG = foreign direct investment as a percentage of GDP, PDEN = population density, GFCG = government final consumption over GDP; EXR represents the exchange rate of the domestic currency over the US dollar; the disturbance term (ε) is assumed to be independently and identically distributed; and the subscript (t) denotes time:

$$EXPG_t = \alpha + \beta FDIG_t + \Omega PDEN_t - \Psi GFCG_t + \zeta EXR_t + \varepsilon_t \qquad \text{equation (1)}$$

If the series is found stationary and integrated in the same order, the dynamic relation of the variables can be studied by employing the simple Vector Autoregressive (VAR) model, as given in equation 2 in a matrix form.

$$\begin{bmatrix} EXPG_t \\ FDIG_t \\ PDEN_t \\ GFCG_t \\ EXR_t \end{bmatrix} = \alpha_0 + \alpha_1 \begin{bmatrix} EXPG_{t-1} \\ FDIG_{t-1} \\ PDEN_{t-1} \\ GFCG_{t-1} \\ EXR_{t-1} \end{bmatrix} + \alpha_2 \begin{bmatrix} EXPG_{t-2} \\ FDIG_{t-2} \\ PDEN_{t-2} \\ GFCG_{t-2} \\ EXR_{t-2} \end{bmatrix} + \ldots + \alpha_n \begin{bmatrix} EXPG_{t-n} \\ FDIG_{t-n} \\ PDEN_{t-n} \\ GFCG_{t-n} \\ EXR_{t-n} \end{bmatrix} + \varepsilon_t \quad \text{equation (2)}$$

However, if the series is found not integrated in the same order, the dynamic relationship of the variables cannot be studied using a simple vector autoregressive (VAR) model, as this generates a spurious relationship. After confirming the stationarity of the variables, the study proceeds to trace the cointegration relationship between variables by applying the Johansen-Juselius procedure (following Johansen 1988; Johansen-Juselius 1990, 1992). It must be noted that in order to run the Johansen cointegration test, all the series under study must be integrated in the same order, either in a level or in a differenced form. This implies that the difference between two or more nonstationary series becomes stationary when they move together in the long run, even though they may drift apart in the short run. The maximum eigenvalue (λ_{max}) and the trace (λ_{trace}) tests are used to detect a cointegrating vector. These are computed as follows:

$$\lambda_{max} = -T \log(1- \hat{\lambda}_{r+1}) \quad \text{equation (3)}$$

Where the appropriate null is r = g cointegrating vectors with (g = 0, 1, 2, 3, ---), against the alternative that r ≤ g+1.

$$\lambda_{trace} = -T \sum_{i=r+1}^{k} \log(1-\hat{\lambda}_i) \quad \text{equation (4)}$$

Where the null is r = g, against the more general alternative r ≤1.

It must be noted that in the presence of one or more cointegrating vectors, the simple VAR method does not produce the desired results unless an error correction term is included in the model. Thus, a VEC model was implemented in this study as outlined in Granger (1988). Based on the base equation (1), the VEC model was specified as follows:

$$\Delta EXPG_t = \alpha + \lambda e_{t-1} + \sum_{i=1}^{n} bi\Delta EXPG_{t-i} + \sum_{i=1}^{m} ci\Delta FDIG_{t-i} + \sum_{i=1}^{o} di\Delta PDEN_{t-i} + \sum_{i=1}^{p} ei\Delta GFCG_{t-i} + \sum_{i=1}^{q} fi\Delta EXR_{t-i} + \varepsilon_t \quad \text{equation (5)}$$

In this specification, the parameter (λ) of the lagged error correction term (e_{t-1}) indicated the long run relationship in the variables being studied, and also the speed of adjustment from the short run to the long run equilibrium state. Importantly, the parameter of the error correction term needs to be negative and statistically significant in terms of its associated t-value to confirm the long run equilibrium relationship in the variables. The appropriate lag-length of the

variables was selected through the final prediction error (FPE) criterion (following Akaike 1969) to ensure that errors were white noise. This also overcomes the over/under parameterization problem which may induce bias and inefficiency in the estimates. The changes in FDI, trade openness, domestic demand, and exchange rate cause the changes in exports when ci's, di's, ei's and fi's are significant in terms of the F-test (Bahmani and Payesteh 1993). The stability of the VEC model was ensured through the test of inverse roots of the AR characteristic polynomial. Besides, impulse response analysis was performed by giving a shock of one standard deviation ($\pm$ 2 S.E. innovations) to FDI, domestic capital, exchange rate and trade openness to visualize the duration of their effects on the export performance of Bangladesh. Finally, a variance decomposition analysis was conducted to detect additional insights.

Results and Discussion

Table 2 presents the descriptive statistics of the variables under study. The Jarque-Bera test statistics failed to reject the null hypothesis of the normal distribution of each variable, which confirmed that the series was normally distributed. Besides, the numeric of kurtosis for each variable was below three (3), which indicated the normality of distribution. The figure for skewness of each variable was found to be mild and positively skewed, except for the PDEN, which was slightly negatively skewed. The standard deviation of the series was low when compared to the mean, which indicated a small coefficient of variation. In addition, the range of deviation between the maximum and minimum of each individual series was found to be reasonable in comparison to the mean. Finally, the mean over median ratio for each series was approximately one, except for the variable FDIG, which represented the normality of distribution. As a whole, the normality of distribution was ensured in the study**.**

Table 2: Descriptive statistics of the variables under study

	EXPG	FDIG	GFCG	EXR	PDEN
Mean	10.70737	0.489560	4.752917	43.13352	974.0180
Median	9.940950	0.147312	4.560223	40.24500	974.3702
Maximum	20.94193	1.466819	6.141041	69.03900	1247.350
Minimum	3.279997	-0.034744	4.136337	15.45400	694.4548
Std. Dev.	5.362085	0.547602	0.529910	16.13736	169.0222
Skewness	0.439155	0.569072	0.869562	0.184698	-0.019984
Kurtosis	1.918284	1.767174	2.769086	1.945019	1.783609
Jarque-Bera	2.426920	3.519043	3.847345	1.561797	1.851506
Probability	0.297167	0.172127	0.146070	0.457994	0.396233
Sum	321.2210	14.68681	142.5875	1294.006	29220.54
Sum Sq. Dev.	833.8068	8.696180	8.143347	7552.017	828486.3
Observations	30	30	30	30	30

Tables 3 and 4 display the results of the unit root test both at the intercept and the intercept plus trend regression forms for the level and the first difference series, respectively under the ADF and the PP tests. The ADF test statistics revealed that all the level series were nonstationary at their intercept and intercept plus trend regression forms, except for the PDEN series, which showed no unit root (in the case of the intercept plus trend) at the 5% level of significance. Likewise, the PP test statistics indicated nonstationarity in the level series, except for the GFCG series, which showed stationarity both at the intercept and intercept plus trend regression forms at the 5% and 1% level of significance, respectively. This was done by comparing the calculated ADF and PP test statistics with their respective Mackinnon (1996) critical values both at the 1% and 5% level of significance. Hence, the study proceeded to differencing the series to check their stationarity. At the first differencing, both the ADF and PP tests clearly rejected the null hypothesis of unit root at the intercept and intercept plus

trend cases both at the 1% and 5% level of significance. Clearly, all the series confirmed stationarity at the first differencing. Thus, it was concluded that they depict the same order of integration, i.e. I (1) behavior. As a result, the study employed the Johansen-Juselius cointegration test on the level series to detect the cointegration relationship in the variables.

Table 3: ADF Unit Root Test for Stationarity

	Level		First Difference	
	Intercept	Intercept plus Trend	Intercept	Intercept plus Trend
EXPG	1.015487	-2.528736	-6.429114***	-7.213010***
FDIG	-1.629711	-2.963173	-6.178839***	-6.024192***
GFCG	-1.186519	-2.239703	-8.420725***	-7.845780***
EXR	0.389952	-1.480079	-5.144659***	-5.098499***
PDEN	-0.263170	-3.662075**	-3.894389***	-3.692696**

Table 4: PP Unit Root Test for Stationarity

	Level		First Difference	
	Intercept	Intercept plus Trend	Intercept	Intercept plus Trend
EXPG	1.533520	-2.528736	-6.392610***	-7.270672***
FDIG	-1.505811	-2.953038	-6.193253***	-6.035065***
GFCG	-3.280270**	-6.152219***	-16.95955***	-17.41754***
EXR	-0.650537	-1.995489	-3.472748***	-3.349969**
PDEN	-2.468145	-2.136851	-3.091485**	-3.289305**

Note: The Mackinnon (1996) critical values are -3.699871 and -2.976263 at 1% and 5 % levels of significance, respectively. *** indicates significance at the 1% level and ** at the 5% level.

Table 5 summarizes the results of the Johansen co-integration test both in the intercept and intercept plus trend regression forms. In both cases, the trace test and the maximum eigenvalue test yielded one cointegrating equation at the 5% level of significance. Thus, it was concluded that the series were cointegrated and a long-run equilibrium relationship existed among them. As a result, the study proceeded to run the vector error correction model outlined in equation 5.

Table 5: Johansen Unrestricted Cointegration Rank Test (Trace and Max-eigenvalue)

	Intercept				Intercept plus trend			
	eigenvalue	Trace statistic	0.5% CV	Prob.**	eigenvalue	Trace statistic	0.5% CV	Prob.**
Trace test	0.791	82.710	69.818	0.0033*	0.893	114.441	88.803	0.0002*
Max-eigenvalue test	0.791	43.853	33.876	0.0024*	0.791	62.591	38.331	0.0000*

*denotes rejection of the hypothesis at the 0.05 level. **MacKinnon-Haug-Michelis (1999) p-values.

Table 6 portrays the results of the vector error correction model. To run the VEC model, the appropriate lag-length (lag 1) of the variables was selected through the FPE criterion, following Akaike, 1969. Table 6 reveals that a long run equilibrium relationship existed among the variables. This was observed through the estimated parameter (λ) of the error correction term ($e^{\wedge}_{t-1}$), which is negative as expected. In addition, FDI was found to have a significant short-term positive impact on the export performance of Bangladesh. Besides, a mild short-term negative relationship was found between trade openness and exports, as the parameter of trade openness is traced significant approximately at the 10% level of significance. Such negative relationship was probably due to the high imports demand of Bangladesh, which caused the trade balance of the country to be negative for most of the years since the 1980s. On the other hand, the numeric of adjusted R^2 shows a low explanatory power of the model, meaning that other explanatory variables not included in the study may have significant influence on exports. The low numeric of the F-statistic further indicates that there is not a strong feedback effect or the presence of Granger bi-directional causality between the variables. However, a unidirectional causality was traced between FDI and exports. As a whole, the VEC model shows that a long run equilibrium relationship exists between FDI, trade openness, domestic demand, exchange rate, and export performance of Bangladesh without having any noticeable bi-directional causal relationship. The stability of the VEC model was ensured through the test of inverse roots of the AR characteristic polynomial.

Table 6: Estimates of VEC Model

Variable	Coefficient	Std. Error	t-statistic	Prob.
C	15.69342	9.154058	1.714368	0.0894
$e^{\wedge}_{t-1}$	-0.050018	0.054919	-0.910753	0.3645
ΔEXPG(-1)	-0.331052	0.202225	-1.637051	0.1046
ΔEXR(-1)	-0.080263	0.189708	-0.423090	0.6731
ΔFDIG(-1)	1.269648	0.582515	2.179598	0.0315
ΔGFCG(-1)	0.190388	0.541548	0.351562	0.7259
ΔPDEN(-1)	-0.778147	0.470700	-1.653171	0.1013
R-squared	0.333364	Mean dependent var		0.559707
Adjusted R-squared	0.142896	S.D. dependent var		0.984798
S.E. of regression	0.911725	Akaike AIC		2.865362
Sum squared resid	17.45610	Schwarz SC		3.198413
Log likelihood	-33.11506	F-statistic		1.750240

Figure 4 reports the impulse responses. It indicates how a one-time positive shock of one standard deviation (± 2 S. E. innovations) to the FDI, domestic demand, exchange rate, and trade openness impacts on the export performance of Bangladesh. It shows that the impulse response of FDI and exchange rate devaluation on exports is positive but diminishes as time goes on. However, the influence of FDI becomes slightly negative after the sixth period. On the other hand, the initial positive shock given to the domestic demand (GFCG) influences exports positively, but becomes negative soon from the second year. Following the negative trend, it becomes insignificant from the fifth year onwards. In contrast, the response of trade openness (PDEN) to exports unearths a negative influence over time.

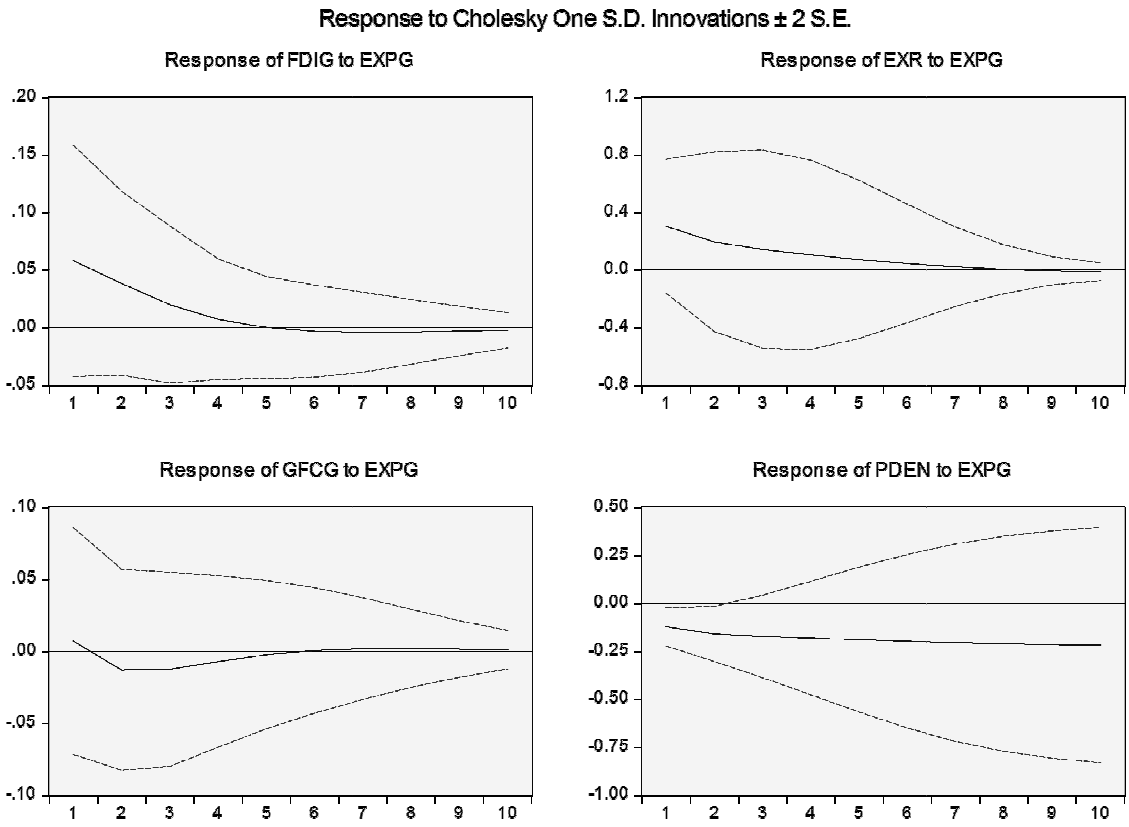


Figure 4: Impulse response of FDIG, EXR, GFCG, and PDEN on EXPG

Table 7 presents the output of the variance decomposition analysis of exports. Table 7 reveals that the variance of exports is mainly fed on itself during the first four years. Thereafter, it declines but remains influential. In the second year, the variance of exports is decomposed into its own variance (67%) followed by FDI (32.67%). However, in subsequent years, the share of FDI increases and reaches the maximum (51.98%) in the seventh year. Then its influence declines, although it remains as a top factor in explaining exports. On the other hand, the share of trade openness, exchange rate, and domestic demand increases gradually from the second year but remains insignificant within the limit of 4%. To conclude, the volatility of exports is mainly fed by its own variation followed by FDI.

Table 7: Variance Decomposition of Exports

Period	EXPG	FDIG	EXR	GFCG	PDEN
1	100.00	0.000	0.000	0.000	0.000
2	67.00	32.67	0.316	0.000	0.000
3	61.36	37.77	0.279	0.516	0.060
4	52.61	44.85	0.718	1.651	0.156
5	47.50	48.65	1.162	2.316	0.361
6	43.96	51.14	1.471	2.772	0.647
7	42.37	51.98	1.569	3.069	0.997
8	42.04	51.81	1.537	3.245	1.360
9	42.627	50.91	1.441	3.317	1.696
10	43.73	49.63	1.336	3.315	1.969

Conclusion

This study investigated the influence of FDI, trade openness, domestic demand, and exchange rate on the export performance of Bangladesh over the period of 1980-2009 by applying a vector error correction model. The results of the ADF and PP unit root tests indicate that all variables in the study were integrated in order one. The test statistics (trace and eigenvalue) of the Johansen cointegration test conducted on the intercept and intercept plus trend regression forms indicate the presence of a cointegration relationship among the variables. In addition, the negative parameter of the error correction term confirms that a long run equilibrium relationship existed among the variables. Besides, a strong short-term causal flow (unidirectional) is evidenced between FDI and exports. In addition to that, trade openness demonstrated a very mild short-term influence on exports, as the coefficient of the trade openness was significant at the 10% level. However, the study did not find any significant relationships between domestic demand, exchange rate, and exports. Moreover, the low value of the F-statistics does not indicate any short-term feedback relationship in the system. Precisely, the VEC model traced a long run equilibrium relationship in the variables under study without having any significant short-term causal flows between them, except for the FDI.

Furthermore, the impulse response function revealed a positive but diminishing influence of FDI and exchange rate on the export performance of Bangladesh. On the contrary, a mild negative influence was found for domestic demand at its initial years, which became insignificant after the fourth year. However, trade openness revealed a negative influence on exports over time. Finally, the variance decomposition analysis revealed that the variance of exports was primarily caused by its own variance followed by the volume of FDI. It is to be noted that the role of FDI in explaining the volatility of exports was more influential from the fifth year onwards. On the other hand, the role of domestic demand, exchange rate, and trade openness was found to be very minimal in causing the changes in exports.

The policy implications of this study can be summarized in the following points. First, a long term link exists in the nexus of FDI, domestic capital, exchange rate, trade openness, and exports performance of Bangladesh. This link indicates that the government of Bangladesh should utilize the above factors carefully on a long run perspective to capitalize on the benefits of the nexus properly. Second, FDI is probably an important factor in explaining the changes in exports. Thus, an FDI-led growth policy can be advocated to increase the country's overall exports and the rates of GDP growth as well. Third, trade openness tends to create an adverse impact on exports. Hence, the government should manage trade policies effectively. In fact, Bangladesh is a highly import-oriented economy with an unfavorable trade balance. Notably, three-fourths of its exports belong to a single sector – the readymade garments (RMG). Unfortunately, the net value addition of the RMG sector is limited to within 15 to 20%. Thus, an appropriate trade policy that would neither influence higher import costs nor create an adverse effect on exports is sine qua non for Bangladesh. Fourth, the VEC based Granger causality test did not reveal any short-term causal relationship between variables under study, except for the FDI. This also implies that the government of Bangladesh should design export and FDI policies in a way that they become complementary to one another.

In the end, it must be said that this study is not free from limitations. For instance, the study used a single indicator for trade openness, domestic demand and exchange rate. Multiple indicators of the explanatory variables along with different measures of exports may generate different conclusions. Nonetheless, this study adopted the latest technique to gauge the link in the variables being studied, which may provide an important basis for future research on Bangladesh.

References

Abbott, Andrew., Adrian C Darnell, Lynne Evans. 2001. "The Influence of Exchange Rate Variability on UK Exports". *Applied Economic Letters* 8(1):47-49.

Adhikary, Bishnu Kumar. 2011. "FDI, Trade Openness, Capital Formation, and Economic Growth in Bangladesh: A Linkage Analysis". *International Journal of Business and Management* 6(1): 16-28.

Agosín, Manuel R. 1991. "Trade Policy Reform and Economic Performance: A Review of the Issues and Some Preliminary Evidence". *UNCTAD Discussion Papers,* No.41. UNCTAD, Geneva.

Ahmed, Nasiruddin. 2000. "Export Responses to Trade Liberalization in Bangladesh: A Cointegration Analysis". *Applied Economics* 32(8): 1077-1084.

Akaike, Hirotogu. (1969). Fitting Autoregressive Models for Prediction". *Annals of the Institute of Statistical Mathematics,* 21(1): 243-247.

Arize, Augustine C. 1995. " The Effects of Exchange Rate Volatility on U.S. Exports: An Empirical Investigation". *Southern Economic Journal* 62(1): 34-43.

Arize, Augustine C., Thomas Osang, Daniel J. Slottje.2000. "Exchange-Rate Volatility and Foreign Trade: Evidence from Thirteen LDC's". *Journal of Business and Economic Statistics* 18(1):10-17.

Asseery, A., and David A. Peel. 2001. "The effects of Exchange Rate Variability on Exports" Some New Estimates". *Economics Letters* 37(2):173-177.

Asian Development Bank (ADB).2005. *Asian Development Outlook*, ADB, Manila.

Asiedu, Elizabeth. 2002. "On the Determinants of Foreign Direct Investment to Developing counties: Is Africa different? *World Development* 30(1): 107-119.

Babatunde, Musibau Adetunji. 2009. "Can Trade Liberalization Stimulate Export Performance in Sub-Saharan Africa?" *Journal of International and Global Economic Studies* 2(1): 68-92.

Bahmani-Oskooee, Mohsen., and Nabil Latifa. 1992. "Effects of Exchange Rate Risk on Exports: Cross Country Analysis". *World Development* 20(8):1173-1181.

Bahmani-Oskooee, Mohsen., and Sayeed Payesteh. 1993. "Budget Deficits and the Value of the dollar: An Application of Cointegration and Error-correction modeling. *Journal of Macroeconomics* 15(4): 661-677.

Bailey, Martin J., George S. Tavlas, and Michael Ulan. 1987. "The Impact of Exchange Rate Volatility on Export Growth: Some Theoretical Considerations and empirical Results". *Journal of policy Modeling* 9(1):225-243.

Chakrabarti, Avik. 2001. "The Determinants of Foreign Direct Investment: Sensitivity analyses of Cross-Country Regressions". *Kyklos* 54(1): 89-113.

Chimobi, Omoke Philip., and Ugwuanyi Charles Uche. 2010. "Export, Domestic Demand and Economic Growth in Nigeria: Granger Causality Analysis". *European Journal of Social Sciences* 13(2): 211-218.

Dickey, David A., and Wayne A Fuller. 1981. "Likelihood Ratio Statistics for Autoregressive Time series with a Unit Root". *Econometrica* 49(4): 1057-1072.

Dritsaki, M., Dritsaki C., and Adamopoulos A. 2004. "A Causal Relationship between Trade, Foreign Direct Investment, and Economic Growth for Greece" *American Journal of Applied Science* 1(3): 230-235.

Duasa, Jarita. 2009. "Asymmetric Cointegration Relationship between Real Exchange Rate and Trade Variables: the case of Malaysia". *MPRA Paper,* No. 14535. http://mpra.ub.uni-muenchen.de/14535.

Fuller, Wayne A. 1996. *Introduction to Statistical Time Series*, New York: John Wiley and Sons.

Granger, Clive W. J. 1988. "Some Recent Developments in a Concept of Causality". *Journal of Econometrics* 39(1-2): 199-211.

Greenaway, David., and David Sapsford. 1994, "What Does Liberalization Do for Exports and Growth". *Review of World Economics* 130(1): 152-174.

Hsiao, Frank S.T., and Hsiao Mei-Chu W. 2006. " FDI Exports, and GDP in East and South East Asia- Panel Data Versus Time-series Causality Analysis". *Journal of Asian Economies* 17:1082-1106.

Johansen, Soren. 1988. "Statistical Analysis of Cointegration Vectors". *Journal of Economic Dynamics and Control* 12(2-3): 231-254.

Johansen, Soren., and Katarina Juselius. 1990. "Maximum Likelihood Estimation and Inference on Cointegration with Applications to the Demand for Money". *Oxford Bulletin of Statistics* 52(2):169-210.

———.1992. "Testing Structural Hypothesis in Multivariate Cointegration Analysis of the PPP and VIP for U.K." *Journal of Econometrics* 53(1-3): 211-244.

Lai, Y.W.2004. "The Role of Domestic Demand in the Economic Growth in Malaysia: A Cointegration Analysis". *International Economic Journal* 18: 337-352.

Liu, Xiaming., Chengang Wang, and Yinggi Wei. 2001. "Causal Links between Foreign Direct Investment and Trade in China". *China Economic Review* 12: 190–202.

Mackinnon, James G. 1996. "Numerical Distribution Functions for Unit Root and Cointegration Tests". *Journal of Applied Econometrics* 11(6): 601-618.

Miankhel, Adil Khan., Shandre Mugan Thangavelu, Kaliappa Kalirajan.2009. "Foreign direct Investment, Exports, and Economic Growth in South Asia and Selected Emerging Countries: A Multivariate VAR Analysis". *CCAS Working Paper*, No. 23. August, Doshia University.

Moon, Bruce E. 1997. "Exports, Outward-oriented Development, and Economic Growth". *Department of International Relations*, Leigh University, Bethlehem, PA.

Morrissey, Oliver., and Andrew Mold. 2006. "Explaining Africa's Export Performance-Taking a New Look". https://www.gtap.agecon.purdue.edu/resources/download /2643.pdf

Mortaza, M. Golam.,and Narayan Chandra Das. 2007. "Foreign Direct Investment, Trade Liberalization and Economic Growth: Empirical Evidence From South Asia and Implications for Bangladesh". *Working Paper Series,* No. 0712, Policy Analysis Unit, Bangladesh Bank. Bangladesh.

Michaely, Michael, Demetris Papageorgiou, and Armeane M Choksi. 1991. *Liberalizing Foreign Trade: Lessons of Experience in the Developing World*. Oxford, U.K.: Blackwell.

Nath, Hiranya K. 2009. "Trade, Foreign Direct Investment and Growth: Evidence from Transition Economies". *Comparative Economic Studies* 51:20-50.

Niemi, Jyrki. 2001. "The Effects of Trade Liberalization on ASEAN Agricultural Commodity Exports to the EU". *77th EAAE Seminar*, No. 325, August 17-18.

Njong, Aloysius Mom. 2008. "Investigating the Effects of Foreign Direct Investment on Export Growth in Cameroon". *UNECA Ad-hoc Expert Group Meeting Paper*, Addis Ababa, Ethiopia (November 24-25).

Perron, Pierre. (1989). "The Great Crash, the Oil Price Shock and the Unit Root Hypothesis". *Econometrica* 57(6): 1361-1401.

Petri, Peter A., Michael G Plummer, and Jeffrey H Bergstrand.1988. "The Determinants of Foreign Direct Investment: A Survey with Applications to the United States". Pp 233-250 in *Economic Development and Cooperation in the Pacific Basin: Trade Investment and Environmental Issues*-,ed.- Hiro Lee, and David W. Roland-Holst. New York: Cambridge University Press.

Phillips, Peter C.B. 1986. "Understanding Spurious Regression in Econometrics". *Journal of Econometrics* 33: 311-340.

Phillips, Peter C.B., and Pierre Perron.1988. "Testing for a Unit Root in Time series Regressions". *Biometrika* 75(2): 335-346.

Prasanna, N. 2010. "Impact of Foreign Direct Investment on Export Performance in India". *Journal of Social Science* 24(1):65-71

Sachs, Jeffrey D., and Andrew Warner. 1995. "Economic Reform and the Process of Global Integration. *Brookings paper on economic Activity* 26(1): 1-118.

Sahoo, Pravakar. 2006. "Foreign Direct Investment in South Asia: Policy, Trends, Impact and Determinants". *ADB Institute Discussion Paper,* No. 56.

Santos-Paulino, Amelia U. 2000. "Trade Liberalization and Export Performance in Selected Developing Countries". *Studies in Economics*, No. 0012, Department of Economics, University of Kent, Canterbury.

Shafaeddin, Mehdi. 1994. "The impact of Trade Liberalization on Export and GDP in Least Developed Countries," *UNCTAD Discussion Papers,* No. 85*,* UNCTAD, Geneva.

Sharma, Kalyan Raj. 2000. "Export Growth in India: Has FDI Played a Role?" Economic Growth Center Working Paper , No. 816, Yale University, Connecticut.

Svensson, Roger. 1996. "Effects of Overseas Production on Home Country Exports: Evidence Based on Swedish Mutlinationals". *Review of world Economics* 132(2): 304-329.

Tsai, Pan-Long. 1994. "Determinants of Foreign Direct Investment and its Impact on Economic Growth". *Journal of Economic Development* 19(1):137-163.

Weiss, John. 1992. "Export Response to Trade Reforms: Recent Mexican Experience". *Development Policy Review* 10(1): 43-60.

Wong, Koi Nyen., and Tuck Cheong Tang. 2007. " Exchange Rate Variability and the Export Demand for Malaysia's Semiconductors: An Empirical Study. Monash University Discussion Paper, No. 13/07, Australia.

Wong, Hock-Tsen. 2008. "Exports and Domestic Demand: Some Empirical Evidence in ASEAN 5. *Labuan bulletin of international Business and Finance* 6: 39-55.

Yanikkaya, Halit. 2003. "Trade Openness and Economic Growth: A Cross-country Empirical Investigation". *Journal of Development Economies* 72: 57-89.

Xing, Yuqing. 2006. "Why is China So Attractive to FDI? The Role of Exchange Rates". *China Economic Review* 17(2):198-209.

Xuan, Nguyen Thanh, and Yuqing Xing. 2008. "Foreign Direct Investment and Exports". *Economies of Transition* 16(2): 183-197.

HISTORICAL PERSPECTIVE:

Japan's involvement in the promotion of Mongol nationalism through Buddhism 1918-1939

Bataa Mishigish[1]

Abstract

This paper explores the attempts of Japan to provoke Mongol nationalism in her favor between the years 1918-1939 by influencing the practice of Buddhism in Mongol territories. For centuries Buddhism was an integral part of Mongol culture, and with the shift in the political situation of the Mongols in the early 20th century it was Buddhism that Mongol nationalism rallied around. The Japanese keenly recognized this and attempted to further use Buddhism as a unifying force to build a "Great Mongol State", in hopes of bringing together all Mongol ethnic groups under Japan's control. This Japanese policy undertaken in the early 20th century towards the Mongols was based on intensive academic and intelligence studies of Mongol local culture and religion in different territories. Japan's already existing knowledge and practice of the Buddhist religion provided a firm foundation for their attempted manipulation of the Mongol brand of Buddhism that further fortified Mongol nationalism. The initial attempt by the Japanese to promote Buddhism for political ends was in Buryat Mongolia in the early 1920s. They then followed this initiative with a greater push in spreading their religious propaganda among the Eastern and Inner Mongols in the 1930s. However, despite their knowledge of the Buddhist religion, their attempt to manipulate Mongolian Buddhism for the end goal of promoting Mongol nationalism eventually failed.

Keywords: Buddhism, Buryat Mongols, Inner and Outer Mongolia, Japan expansionism, Mongol nationalism, Soviet Union

Introduction

Historically, Mongolian Buddhism in the territories of Outer Mongolia, Inner Mongolia, Manchuria, Buryat (Buryat Autonomous Region in Russia), and Oirat (Western) Mongolia played a significant role in Mongolian nationalism in the first half of the twentieth century. "Mongolia Proper", otherwise explained as the core territory in which Mongol ethnic people inhabited starts in the west from the eastern shores of Lake Balkash in modern day Kazakhstan to the east as far as the modern city of Harbin in Manchuria; and in the south from the Great Wall and just north of the city of Urumqi to the north until Lake Baikal in Siberia. Modern political/geographical boundaries of the region were not finalized into the borders we recognize today until 1950 when the jointly signed treaty between the Soviet Union and Communist China guaranteed the independence of the Mongolian People's Republic and finalized its state borders; this treaty effectively separated the various Mongol tribes into inhabiting Soviet, Chinese, and Mongol territories today as it solidified the borders where each of these three countries intersected.

Mongol nationalism, although present throughout Mongol society, was not an interest of vital concern to the various Mongol tribes. However, in the late 17th century, Tsarist Russian policy for expansion reached the Buryat Mongols and eventually brought them under Russian control, and by the 18th century the Buryat Mongol territory was already an inseparable part of Tsarist Russia. Historically the Buryat Mongols have lived around the lake Baikal for centuries and are considered as one of the largest ethnic Mongol groups. Moreover, in the late Qing period Chinese peasants and merchants began settling in Mongol territory in large numbers and this settlement boomed after the fall of the Qing Empire.

Therefore, in the late 19th and the early 20th centuries, the Mongols began experiencing rapidly growing pressure from Russian and Chinese political and territorial interests which continued their expansion into Mongol territories, thereby threatening their national and cultural interests. Growing foreign economic and political pressure resulted in

[1] Office of International Affairs, National Academy of Governance, Ulaanbaatar, Mongolia; and Graduate School of Asia Pacific Studies, Ritsumeikan Asia Pacific University, Beppu city, Japan e-mail: mbataa@gmail.com

the development of a nationalist movement among the Mongols. Generally, the same Mongol race, language, history and way of nomadic life largely defined Mongol nationalism throughout its history. However, given the tribal differences among the Mongol ethnics at the time, the Buddhist religion became the most effective unifying factor of Mongol nationalism in the early 20th century following the fall of the Qing Empire and its withdrawal from Mongol lands in 1911. This unification of Mongol identity centered on Buddhism was epitomized by the enthronement of the Bogd Javzandamba Khutukhtu as the Khan (King) of Khalkha Mongolia. Khalkha is the largest ethnic group of the Mongols, who lived in the area roughly encompassing the current Mongolian state. The region of Mongolian territory inhabited by Khalkha Mongols is often termed "Outer Mongolia". Although it has been argued that Buddhism was the only available ideology to counter the rising socialist ideology in the region, this act by the Khalkha Mongols to bestow supreme power to their religious figurehead in 1911 might have encouraged the Japanese to use Buddhism in order to unify different Mongol ethnics two decades later in the 1930's.

Knowing the importance of Buddhism in the daily life of the Mongols, its two neighbors pursued mostly friendly policies towards the Mongol religion. By encouraging Buddhism, the Manchu Empire and Tsarist Russia had attempted to strengthen their influence among the Mongols and manipulate the religion for their interests since the 16th and the 17th centuries, respectively. The Mongols, Manchu, and Russians continued to be the only active players in the region until the early 20th century. With the expansion of Japan in continental Northeast Asia in the early 1930's, the active players in the region increased by one. It was at this time that given the political, economic, and social connections between the area of Manchuria and Mongolia Proper, Japan emerged as a fourth player in the region and decided to take part in the political and cultural/religious affairs of the Mongols. When Japan occupied Manchuria, a part of which was Eastern Mongolia Proper historically, Japan pursued a policy seeking to gain the support of the local people and to use Mongol nationalist ideology in their favor. The Japanese broached an appeal to the Mongols, which intended to win over all Mongol ethnic groups starting from east to west for the end goal of exercising Japanese influence over all Mongol ethnic people in Inner Asia.

In the first part of this paper, a brief review of historical data provides a general picture of Mongolia's external political environment and an understanding of why a Mongol nationalist movement was developed and what led the Mongols to such reactionary moves against her neighbors' policies. The second part of the paper explores the early period of Japan's involvement in the Mongol nationalist movement through Buddhism in Buryat Mongol territory in the Lake Baikal region of Siberia. The third and final part of the paper, followed by the conclusion, examines Japan's second attempt to promote Mongol nationalism by reviving and reforming Buddhism, in the name of establishing a "Great Mongol State" among the Mongols in Manchuria and Inner Mongolia in the 1930s.

Methodology

This paper provides a historical account of some of Japan's motives and actions in dealing with the Mongols in the time period of 1918-1939. It was noted from the beginning that there was very little in the English and Mongolian literature on the subject. The information presented in this paper has been collected from the analytical narratives of foreign observers and with the use of secondary sources. Supported by Topolski (1976), the gathering of data, its synthesis and analysis were based on source-based knowledge, and source-based information/data, including secondary historical sources; all have been qualitatively analyzed.

It has been the author's job to sift through and interpret the validity and relevance of secondary sources to complete this paper. Given that the primary data concerning this historical account is deficient in both the Mongolian

and English languages, secondary sources were relied on to provide the context and complete this historical study. Given that access to primary data concerning this historical account in both Mongolian and English language sources has been limited and deficient, secondary sources were relied on to provide context and fill certain holes in order to complete this historical study. It is hoped that a historical scholarship using secondary sources could pull together a new perspective, the significance of which was to contribute to the study of Japan's involvement in promoting Mongolian nationalism through Buddhism.

Discussion

1 – Historical Background

Historically the Russians arrived in the Baikal Lake area in the 17th century. In 1691, the Khalkha Mongol princes of Outer Mongolia who were defeated by the Oirat Mongols (Western Mongols) turned south for help and submitted suzerainty to the Manchu (Qing) Empire. Western Oirat Mongols consist of several smaller ethnic groups who inhabit the western part of Mongolia Proper. The Buryats were a part of the Mongol Empire since the 13th century; however, as Russians' eastward advances intensified in the late 17th century, the Buryats had no choice but to sign a treaty with the Russians and become subjects of Tsarist Russia in 1689.

As political conditions drastically changed in the early 20th century, Mongol nationalism was first developed on a large scale. The Tsarist and Manchu authorities reversed their policies towards the Mongols and implemented a more progressive and intrusive administrative policy over the Mongol territories in Buryat, Inner Mongolia, and Manchuria. More Russians moving west aggressively pushed the Buryats out of their land. In 1902, Tsarist regulations directly attacked the social structure of the Buryats.

Similarly, in the late 19th century, the Manchu officials, afraid of Russia's further expansion into Mongol territory, reversed their previous policy of protecting the Mongols from the Chinese. Instead, the settlement of Chinese farmers accelerated in Eastern and Inner Mongolian territories. This rapid and extensive penetration into Mongol territory aimed at absorbing Mongol lands and people under the Chinese rule. The Mongols of Inner, Eastern (Manchurian), and Buryat Mongolia experienced a direct threat from the Chinese and Russian economic and political advancements, as well as their cultural expansion. There was no doubt that this rapid 'Sinification' and 'Russification' would soon lead to a shift in the Mongols political position, as well as a shift in their culture. But the Khalkhas of Outer Mongolia were in a relatively better position by being distant from foreign disturbances as compared to other Mongol ethnic groups at the time.

The outcomes of the Sino-Japanese War of 1894-1895 and the Russo-Japanese War of 1904-1905 enabled the Imperial Japan not only to occupy considerable territories in Continental Northeast Asia, but it also gained a worldwide prestige for its political and military strength. The Sino-Japanese Agreement of 1915 gave Japan certain privileges in Eastern Inner Mongolia and Manchuria. The Japanese sought to strategically and economically use Manchuria by taking control of the existing transportation systems and building of new railroads, as well as exploiting its natural resources. Thus, Japan aggressively pushed its military advancement towards East Asia competing with the strategic interests of both Russia and China.

In 1918, a year after the 1917 Bolshevik Revolution, Japan sent its military to Siberia (Russian Far East) and temporarily occupied the important Maritime Province of Vladivostok and some Buryat territory of Russian Siberia. Meanwhile, far-eastern Russia was temporarily under Admiral Kolchak's control, who was assisted by Britain, the USA, France, Italy, and Japan as well. These Western powers and Japan according to the 1918 Britain conference

decided to send seven thousand troops from each country to Russia's Far East in order to oppose the new revolutionary government; Japan sent ten times as many (Phillips, 1942, p. 26). As the Japanese troops occupied Vladivostok and further advanced along the Trans Siberian Railway reaching as far as Lake Baikal in 1918, they established relations with Ataman Semyonov, not Kolchak, but his more important officer. Japan's policy of supporting the unification of the Mongols under the Narmai Mongol state under Semyonov and Baron Ungern leadership in the early 1920s, and its later attempt to build the Manchukuo state with the active participation of the Mongols in the 1930s show that Japan had an early political interest in Mongol affairs as she advanced farther west into the Northeast Asian continent. Now there was an opportunity for Japan to further pursue its expansion policy towards the nations of East Asia. This was the first time that the Buryat Mongols were recognized by foreigners as the gateway/middle-men to other Mongol groups and their territories.

2 – The First Period of Japan's Policy Towards Mongol Nationalism

Mongolia's immediate neighbors, Tsarist Russia (later the Soviet Union), the Manchu (Qing) Empire of China, and the Imperial Japan as a rather distant neighbor, were all aware of the importance of Mongol Buddhism in dealing with the Mongols. Mongolia was geographically isolated from direct communication with all nations except Russia and China and sought new allies. In 1914, the 8th Jebtsun Damba, the political and spiritual leader of all Mongols, sent a letter to the Emperor of Japan requesting assistance in the struggle for Mongol unification. He was known as the eighth reincarnation of the first Buddhist spiritual leader of the Mongols, was a Tibetan, and was enthroned as the Khaan of all Mongols as a result of the 1911 national revolution for independence from the Qing Dynasty. This was a critical time for the survival of Mongolia's independence, as they had freed themselves from the Manchus three years earlier. The Japanese Government silently rejected this request. This was the first direct attempt of the Mongols to establish direct contact with the Imperial Japan in the 20th century (Cheney, 1968, p. 44).

Ten years before this in 1904, a significant event took place in Urga, which led the Mongols to seriously consider Mongol independence from the Qing Empire. The 13th Dalai Lama of Tibet (*Ngag-dbang Blo-gzang Thub-ldan*) fled to Urguu (the capital of Outer Mongolia) because of the British occupation of Lhasa in 1904. The 13th Dalai Lama's visit to Outer Mongolia in 1904 had strategic significance in seeking for political support from the Mongols, as both the Mongols and the Tibetans were now free following the collapse of the Qing Empire. However, this visit by the Dalai Lama could undermine the political and religious authority of the 8th Jebtsun Damba Khutukhtu, the spiritual and political leader of the Mongols whom would later be enthroned as the Khan of the Khalkha Mongols after the 1911 national movement for independence. The Jebtsun Damba recognized the Dalai Lama's religious primacy, but resisted any challenge from the Dalai Lama to his political authority. Wherever the Dalai Lama went, Buryat, Khalkha, Oirat, Inner, and Eastern Mongols followed him, showed great respect, and paid tribute to him as a Living Buddha. The Dalai Lama's presence in Mongol territories had no direct political influence over the Mongols since the Mongols in history never looked to Lhasa for political leadership; however, thousands of Mongol Buddhists gathered wherever the Dalai Lama was, strongly proving that the Mongols had a very strong Buddhist religious tie among themselves.

This was also the time that thousands of Mongols, from different parts of Mongol territory gathered together and had a chance to chat about their political and economic conditions under the Qing Dynasty, which by this time was already weakening throughout Mongol territory. At the same time, this provoked the Mongol awareness of Chinese and Russian incursions into their lands. Such large gatherings became a conditional cause for the Mongols to express their nationalistic sentiments. At that time China and Russia were paying close attention to the Dalai Lama's political refuge in Mongolia. More importantly, the Dalai Lama's great religious influence on the Mongols must have had some

effect on the policy of its neighbors towards Mongolia and its Buddhism. This perhaps helped foreign powers to realize the significance of using Buddhism towards the Mongols in advancing their interest among the Mongol people and throughout their territories.

Historically, Buddhism came to Buryat via Outer Mongolia and Tibet in the 17th century. Since then the Buryats have had a strong religious connection with both Urga and Lhasa. As Russian pressures strengthened and their interests expanded, some Buryat intellectual lamas attempted to create a Buddhist-oriented kingdom, highlighting their religious and cultural unity. One of these intellectuals was Agvan Dorjeev, who envisioned a Mongol-Tibet Buddhist state headed by the Dalai Lama (Rupen, 1964, p. 106). The idea was to create a strong Buddhist state in Central and East Asia. Agvan Dorjeev's Pan-Buddhism idea was an extension of Pan-Mongolism, but added Tibet to the Mongol areas and would bring the two nations under religious unification.

The idea of Pan-Buddhism was later promoted by the Japanese when they sent over seventy thousand troops to assist Admiral Kolchak in his counter-revolutionary campaign against the Bolsheviks in Siberia. According to Rupen, the two leading Buryat Buddhist leaders, Agvan Dorjeev and Tserenpil supported Kolchak. Agvan Dorjeev was paid twenty thousand rubles monthly by the Kolchak regime to oppose socialist and revolutionary movements among the Buryats (Ibid., p. 135). Since the Kolchak regime was funded by the Japanese, Khambo Lama Agvan Dorjeev's activities were also indirectly financed by the Japanese; such moves were aimed at winning over the Buryat Mongols and separating them from Russia by including them into the greater Pan-Mongolism initiative based on Buddhist and nomadic culture. This was the first time the Japanese attempted to expand the propaganda of "Asia for the Asiatics" involving the local Buryat Mongols.

According to Phillips, all Japanese agents were Buddhist monks, perhaps disguised as Mongol lamas. Phillips states, "Japanese agents, often Buddhist lama priests, went around the tribes preaching that Japan was heaven and the Japanese troops were divine avengers of earthly injustice and wickedness…" (Phillips, 1942, p. 27). This strong statement was justified by a mysterious Buddhist prophecy of the Army of *Shambala* (Mon: *Shambal*; Tib: *Tyan-p'yogs kyi Sam-bha-la*). The original idea of *Shambala* is that the Great King *Eregden Dagbo*, who resided in his Buddha-land *Shambala*, which existed in the far northern space, would someday descend to earth to destroy evil and promote the Dharma or the teachings of the Buddha. Interestingly, this mysterious prophecy was then re-interpreted by the Japanese that heaven *Shambala* was located in the east, in the land of Japan, and the Japanese troops as the Army of *Shambala* came to defeat "heretics and atheists", meaning Bolsheviks, and to restore order. Eventually all the "evils" would be destroyed by the troops of the Rising Sun and all Buddhists would be empowered (Ibid., p. 69).

But the Buryats favored Semyonov more than they did the Japanese due to Russian cultural and political familiarity that had developed for over two centuries. A year later, the Japanese put efforts in creating a "Pan-Mongol movement", which was to re-establish a "Great Mongol" Empire or "Mongol Proper". It seems that at this time the Japanese were more interested in Pan-Mongolia rather than Pan-Buddhism. It was obvious that Japan's policy was to promote nationalism amongst the Mongols through manipulating Buddhism but not to create a Buddhist state. In this matter Semyonov took the lead in gathering a group of Inner Mongols and Buryats in Chita, Siberia. Six representatives from Buryat Mongolia, five from Inner Mongolia, and four from Eastern Mongolia (extending into Manchuria), joined the meeting. Semyonov and the Japanese Major Sutsui, an adviser for Semyonov, actively took part in the conference. None from Outer Mongolia attended the meeting. Due mainly to both foreign pressure and domestic reluctance, Outer Mongolia did not send any representative to this gathering.

The conference laid down the first constitution of the Pan-Mongolian State Government and decided with a single voice that Japan, due to its strong Buddhist tradition and military strength, would be the best foreign protector of

the newly established state. Semyonov promised to supply one million rubles for the new government and weapons for the new Mongolian army. Because of the costly civil war with the Red Army, Semyonov himself could not produce the money and weapons he had promised. Without Japanese support Semyonov was unable to fulfill his promises. The hesitation by Japan to continue its support of Semyonov was primarily due to its own economic difficulties, more importantly its lack of arms supply in Manchuria. This, coupled with the external pressure by the Chinese, led to Japan's decision not to continue its support of Semyonov, and consequently the Pan-Mongolia plan failed. This new government's enduring attempt to appeal to the Jebtsun Damba for political and religious leadership of a newly unified Mongol nation-state resulted in vain.

From the beginning of the establishment of a Pan-Mongolian State, the Jebtsun Damba of Urguu was suspicious of Semyonov and some Buryat leaders. On one hand, it was very clear to the Outer Mongolian leadership that this new government would not last long without direct involvement of Outer Mongolia. On the other hand it was a very complicated political situation since the new government was supported only by Japan and a makeshift conglomerate of former Tsarist (White) Russians, while both the Bolshevik Russians and the Chinese warlords adamantly opposed this initiative. Obviously, the Chinese strongly pressured the Jebtsun Damba not to join the government.

Throughout Western Buryat territory, the Japanese agents were admitted to travel without hindrance. Even after the establishment of the Buryat Republic under Soviet rule, the Japanese were still influential in terms of money and ideology. As Buryats were known during this time to play to each side of the Red vs. White Russian revolution and counter-revolution, their allegiances were often shaky and opportunistic. In accordance with the Phillips' account, many important officials of the Government of the Buryat-Mongol Soviet Republic were in fact Japanese agents, including the Bolshevik Party Secretary Yerbanov and some members of the People's Commissars. Phillips further says:

> "Throughout western Buryat-Mongolia, where the Buddhist church was still strong, Japan spread her propaganda by means of lama monks. The propaganda was of two kinds: one for the dispossessed upper layers of the old regime, and one for the still superstitious elements of the Buryat peasantry" (Ibid., p. 68).

From this quote we could see that Japan's policy was to attract and favor the high class of monks and noble families suppressed by the Russians, and then provide hope for ordinary people that the creation of a new state would bring about prosperity in their traditional religion, Buddhism.

Since the Jebtsun Damba did not support the new Pan-Mongolian regime, the most important person of the new government was Neisse Gegen, a reincarnated lama of Inner Mongolia, who headed the government for a short period of time, and one of the most influential Inner Mongolian Buddhist reincarnated lamas of the time. Neisse Gegen sent a delegation to the Paris Peace Conference aiming at gaining international recognition for the new regime (Rupen, 1964, p. 135). The Pan-Mongol Government was not successful in gaining international recognition, and of even greater frustration to the Pan-Mongol Government, they could not even secure support from their brothers the Khalkha Mongols of Outer Mongolia. Such failures resulted in the withdrawal of Japanese support. This time the Gegen himself tried to re-establish contact with the Japanese but did not succeed. The Pan-Mongol Government collapsed and soon after the Gegen was captured and executed by the Chinese.

However, this was not the end, and in 1920 the Japanese tried again. The Japanese financially assisted and armed Baron von Ungern-Sternberg, a high-ranking officer of Semyonov, and sent him to Urguu, where he claimed to restore a Great Mongol State with the Japanese assistance. The Baron placed the Jebtsun Damba under house-arrest and forced him to admit his puppet government named "Ikh Mongol" (Great Mongol). Simultaneous to Japan's reinvigorated

plans to create a Pan-Mongol state, the Chinese warlord Xu Shuzheng took control of Urguu and dismantled the Jebtsun Damba government. Interestingly the Mongols, from the Jebtsun Damba himself to ordinary people, much favored the Baron since he was the key figure who freed Outer Mongolia from Chinese colonization. For his victory over the Chinese, the Jebtsun Damba awarded the Baron with the title of a Buddhist reincarnation.

Ungern-Sternberg's order to his officers proves that he was under Ataman Semyonov's guidance and they both were receiving assistance from the Japanese (Phillips, 1942, p. 35). However, the Baron's government quickly alienated the Mongols and it soon imploded. The primary reason for the failure of Baron's regime was the economic exploitation of first the Russian expatriate community in Urguu in which all expatriate wealth was confiscated by the Baron, and second, the even more ill-advised economic exploitation of the Mongols themselves; as such the Mongol sentiment for the Baron spiraled quickly downward soon after his rise to power. Soon, mainly due to the lack of Mongol support, Unger-Sternberg's troops were hopelessly defeated by the Soviet Red Army, and in 1922, he was captured by the Soviet militia and executed in the Western Mongol region. This put an end to Japan's continuing efforts in creating a Pan-Mongolian state in Buryat and Outer Mongolia; but yet again, this was not Japan's last try.

3 – The Second Period of Japan's Policy for Mongol Nationalism and Buddhism

In 1931, the Japanese invaded the three eastern provinces of Northeastern China and declared them independent from China under the name of Manchukuo. The size and strategic position of the territory populated by Mongols in Manchuria gave the Mongols a greater advantage over other ethnic groups in the region when dealing with the Japanese. In 1933, the Japanese also annexed a former Inner Mongolian province and further advanced into the western part of Inner Mongolia. Without an active Mongol policy, Japan could not complete its continental expansion in Inner Asia. The Japanese chose Mongol Buddhism again to be their most favored tool to win Mongol support. In the long-run, this Japanese policy was intended to attract the Khalkha Mongols via the Inner and Eastern Mongols whilst further distancing them from Soviet influence. The policy and its implementation of Pan-Mongolism became increasingly aggressive in Inner Mongolia in the 1930s. The Japanese manipulated the Inner Mongolian nationalist movement and exploited the Khalkha refugees (who had escaped from Mongolian communist rule), and tried to sever Outer Mongolia from the Soviet's ideological and economic influence.

The Inner Mongolian nationalist movement was divided into the Ulanfu group supported by Chinese Communists and Pa'I Yun-t'I group who cooperated with Chiang Kai-shek. One of the leaders of the group supporting the Kuomintang was Prince Demchugdongrob, also known as Te Wang. Prince Te was claimed to be the last Prince of the *Altan Urag*, the Golden Clan of Chinggis Khan. He was born in the Sunid Right Banner of Inner Mongolia. In the beginning of Japan's expansion into Inner Mongolia, Prince Te was the first person with whom the Japanese contacted. Sasame Tsueno who was also a Japanese Buddhist monk, brought a letter from General Matsui Iwane and General Hayashi Senjuro to Prince Te. The letter, according to Jagchid (1999), explained Japan's desire to help the Mongols gain their independence with the assistance of Japan (p. 58).

Japanese activities among the Inner and Manchurian Mongols were carried out by the Japanese Special Service Officers and the Good Neighbor Association (*Zenrin Kyokai*). It was Sasame Tsuneo's idea to create the Association, which was formally established in 1933 with the support of General Hayashi Senjuro and Mazumoro Koryo (Ibid., p. 127). Besides conducting intelligence work, the Association administered other educational and cultural (religious) programs. The Association had more than one branch in various banners of Inner Mongolia. The Good Neighbor Association in cooperation with local administrative offices sent a number of Mongolian students, including some monks, to Japan to study. Even Te Wang sent his eldest son to Tokyo to receive education in 1939.

During the early period of the occupation of Manchuria, the Japanese forced young lamas to serve in its military in Manchuria. They soon realized that this was an ill-advised move, as any anti-Buddhist activity would work against their policy and drive the Mongols away from the Japanese. The Mongols of Manchuria were just as important in this situation as the Mongols of Inner Mongolia in terms of their role in Japan's further expansion into Continental North/Inner Asia. If at any time they felt disaffected by Japanese policy, they could easily turn either to Outer Mongolia or to China and pose a perpetual threat to the increasing strategic interest of Japan's expansion and territorial control in the region. Therefore, the Japanese prohibited the Chinese immigration into Mongol territory and worked towards strengthening Mongol support by treating its religion in a more "special" way. Thus, when Japan invaded Inner Mongolia, it implemented a more friendly policy towards the lamas and monasteries. Because of the political influences of monasteries in Mongol areas, the Japanese pursued a policy to "Japanize" Mongol Buddhism.

According to Gubler, the Pan-Buddhist movement in continental Asia was legitimized by the establishment of the "Buddhist Association of Japan and Mongolia" *(Nichi Mo Bukkyokai*) in Tokyo in 1938. This association was later reorganized as a more inclusive organization named "The Buddhist Association of Asia under Japanese Leadership" (Gubler, 1968, p. 28). Another association that carried out significant scholarly works on the study of Mongolian culture and religion was the "Association for a Good Neighborhood" (*Zenrin Kyokai*). Besides various government funded associations, some religious sects also took a crucial part in research and study projects. On this Jagchid (1999) provides a clear account stating:

> "This Japanification policy was run by the Koyazan sect, with roots in the Japanese Shinganshu sect. Koyazan was a tantric Buddhist sect that had many similarities to the esoteric Buddhism of Tibet; it dispatched many monks to visit Mongolian monasteries and conduct research into Mongolian religious beliefs and practices" (p. 271).

Another Japanese Buddhist sect that carried out the religious policy of Mongol Buddhist reform was Omoto-kyo, which was established during the Meiji period, headed by a Buddhist priest and intelligence agent named Ideguchi. Ideguchi, according to Katsumi, was the leader of the group and had a missionary plan to spread the teachings of the Omoto-kyo sect among the Mongols. Another individual who undertook the role of a religious missionary was Higashi Honganji, a Japanese priest of esoteric Buddhism. While studying Buddhism in Mongolia, Honganji became a lama of Mongolian Buddhism.

Similarly, Gubler (1968) also mentions that a number of Japanese Buddhist priests lived in Mongol monasteries, learned the Mongolian language, and dressed as Mongol lamas. Katsumi (1999) also supports this fact, reinforcing that it was true that some Japanese Buddhist monks temporarily lived in Mongol monasteries and acted as if they were Mongol lamas. These Japanese monks conducted surveys of Buddhist temples and monasteries and their activities. Obviously, their "missionary" work resulted more in scholarly works and intelligence information gathering than religious conversion.

Japan's Buddhist propaganda was carried out on the basis of a careful study of Mongol culture and religion, which led to the forcing of the local people to adopt some aspects of Japanese culture. In this case it was obvious that Japanese Buddhism was the tool that worked to influence Mongol religion and culture. These extensive research works were generously funded by the Japanese government, specifically by the Ministry of Education, in the early period of Japan's expansion. In later years during the war, these types of research projects were funded by such organizations as the Manchuria Ethnology Association organized in 1941 and the Northwest Institute established in 1943; both organizations were located in Manchuria. According to Katsumi (1999), many researchers dispatched by the Ethnological Institute, which was funded by the Japanese Navy and Army, came to Inner Mongolia and Manchuria to

conduct a number of research projects. Although we mainly discuss Japan's policy to attempt a reform of Mongol Buddhism in the pre-war era, it appears that even during the war this process of using Mongol Buddhism for information gathering by the Japanese continued, which implies that this policy was both deliberate and organized throughout its lifespan.

It was difficult for the Japanese to impose their new religious reform policy on the higher ranking and more influential lamas, who were reluctant to accept Japan's propaganda in promoting Japanese Buddhism as a superior sect of the Buddhist faith. Thus, the Japanese decided instead to recruit young lamas in their twenties and send them to Japan for religious education and training. These young lamas were sent to Shingon University at Mt. Koya, where they studied various religious subjects of Shingon Buddhism. This school for young lamas was called *Koa Mikkyo Gakuin*. The curriculum included instruction in everything from an elementary Japanese language program to complicated religious content and training, which was to be completed within three years (Gubler, 1968, p. 47). These young lamas were then expected to return to Mongolia and reform Mongol Buddhism.

Due to their limited ability (mainly due to language and cultural differences) to teach Mongolians in Japan at the time, the number of Mongol students sent to Japan for Buddhist training was relatively small. The local government services in Inner Mongolia and Manchuria recruited those who qualified. As an example, only thirty young lamas from Manchuria were enrolled in the program in 1934 (Ibid., p. 49). The majority of these students returned earlier than expected. For various reasons, the dropout rate among the Mongol students was roughly thirty percent. Those who remained for two or three years completed the program, with a few continuing their studies conducting research in Japan after completing the three-year program. However, the outcomes of the religious reform policy of the Mongols did not live up to the expectations of the Japanese. As Jagchid (1999) mentions, most of the lamas who went to Japan did not change their religious beliefs; the number of students was insignificant and the length of the program was not sufficient enough to convince these young lamas to change their religious values and day-to-day practices. The cultural and linguistic difficulties while in Japan, coupled with the lack of an incentive to reform their own understanding of Buddhism led to the failure of this religious "study abroad" program.

Both Mongol Buddhism and Shingon sectarian Buddhism share some similar teachings and practices based on various esoteric elements. Despite these similarities, the Japanese priests faced difficult resistance from the leaders of local Buddhist monastic institutions who did not desire any type of reform to the traditional way of their religious life. As the Japanese tried to push their religious reform policy harder, they faced more conservative and reactionary attitudes from the higher Mongol lamas, who favored the protective side of Japan's reform policy, rather than the "purification" elements of it.

In May 1943, the "Second Conference for the Restoration of Mongolian Buddhism" took place in Kalgan (today's *Hohot*, the capital city of Inner Mongolia). The First Conference had taken place a year earlier and proved less significant and unproductive. Local officials, high-ranking lamas, and chief Japanese advisors attended the second conference; their main objective was to avoid Japanese intervention in religious affairs and to emphasize the importance of the traditional religious system. A goal of the conference was to establish the Secretariat Office of Lamas' Affairs (*Lama-yin Tamgyn Gazar*) to regulate and manage religious affairs. The Office consisted of several of the most influential Mongol reincarnations and high lamas. Interestingly, a Japanese military officer, named Yukei Kogan, was appointed to the position of advisor to the Secretariat Office. Yukei Kogan was the head of the local intelligence bureau and a Buddhist monk (Jagchid, 1999, p. 297). The conference resulted in a symbolic outcome rather than a practical one given that the influential Mongol lamas wanted to keep running their religious affairs in an independent and traditional way without compromising their spiritual authority.

In the process of "Japanification" of Mongol Buddhism, various Buddhist sects both Japanese and Mongol (to a lesser degree) carried out extensive education and training programs for the purpose of 'cultural unification" with the end goal of strengthening Japan's new order in East Asia. In the summer of 1940, along with the Buddhist reforms, the Japanese extended Shintoism to the newly occupied territories, one of which was Changchun, the capital of Manchukuo where the spirit of *Amaterasu Omikami* was transferred, and a new Shinto shrine was erected to symbolize Japan's control over Manchukuo (Holtom, 1947, p. 169). The principal of bringing in other races as subjects of Japan, along with compassion for Buddhism, was incorporated into Japan's expansionism policy. Therefore, Japan's religious policy towards the Mongols was well prepared as different religious sects were actively involved.

After 1937, the Japanese further advanced in Inner Mongolia spreading propaganda about a "renaissance of Buddhism", which was an attempt to reorganize Buddhist monasteries. This propaganda, also included a declaration of a "Holy War" against Communism (Rupen, p. 227). This Japanese policy was supported by the wishes of the most influential lamas, and was purely initiated for the purpose of changing the structure of monastic institutions and their monks' way of life. For example, Japanese monks worked to persuade Mongol lamas to engage in farming. To the livestock handling Mongols this was surprisingly unusual and contradictory to their spiritual teaching and daily life rituals and practices.

Historically, the most interesting and significant project the Japanese aimed at implementing was finding the next reincarnation of the 8th Jebtsun Damba, the spiritual leader of all Mongols. Regarding this matter a more in depth study is required to further provide a detailed account of Japan's direct involvement in selecting the next reincarnate of Mongolia's highest religious leader in that period. If this project worked out, the Japanese could have greatly benefited in convincing the Mongols that they had the legitimacy to influence Mongol Buddhism. The Japanese sought the support of the 13th Dalai Lama to persuade Mongol lamas and lay Buddhists of their intentions:

> "In the worst class is the manner of working among the Red [Communist] people. They do not allow search to be made for the new Incarnation of the Grand Lama of Urga. They have seized and taken away all the sacred objects from the monasteries. They have made monks to work as soldiers. They have broken religion, so that not even the name of it remains" (Ibid., p. 228).

This type of influential statement of Mongol and Tibetan religious leaders became the core-guiding principal for the Japanese in their search of the 9th Jebtsun Damba in Tibet. However, the death of the 8th Jebtsun Damba in 1924 removed all obstacles for the Mongolian People's Party (MPP – Communist Party of the People's Republic of Mongolia) and further strengthened the socialist regime in Outer Mongolia. This was the end of the strong political, economic, and religious position of Mongol Buddhism in Outer Mongolia. In the same year, the Outer Mongolian MPP Government officially announced that there would be no further reincarnation of the Jebtsun Damba in Mongolia. All Mongols since the 16th century looked towards Urguu, the capital city of Outer Mongolia as called before 1924, and specifically the Jebtsun Damba for spiritual and political leadership (the revolutionary government changed the name of the capital city of Mongolia to Ulaanbaatar, literally meaning Red Hero, in 1924). Therefore, given the unification powers of Mongol Buddhism among the scattered Mongol tribes, the 9th Jebtsun Damba reincarnate would be the only political figure with the ability to pull all Mongols towards unification. Therefore, finding the ninth reincarnation would give the Japanese enormous political and religious influence over the Mongols. Consequently, a group of high lamas and Japanese advisors were sent to Lhasa, Tibet in order to find a new reincarnation. The highest lama among the delegates was the Dilowa Khutukhtu, who was one of the most influential reincarnate lamas of Outer Mongolia (he escaped the Communist oppression of Buddhism in Mongolia in the 1930s and defected to Inner Mongolia after nearly being executed by the communist authorities in Outer Mongolia). The 13th Dalai Lama offered

his spiritual guidance to the joint Japanese and Mongol Buddhist plan of finding the 9th reincarnate of the Jebtsun Damba. Jagchid (1999) explains that the Japanese arranged and financed the entire 1935 trip to Lhasa and its grander plan of implementation (p. 271). However, probably due to the strong opposition from the Outer Mongolian government, and opposition by the Chinese and some Inner Mongolian nationalist leaders, such as Te Wang, the search plan for the 9th Jebtsun Damba was not completed. Perhaps as a result of this search, the Tibetan authorities found the 9th Jebtsun Damba in Tibet in order to attract Mongols. But no outside government, not even the Japanese paid a great deal of attention to this matter, due to the insignificance of the issue at that time. In 1942, the Japanese promoted the reincarnation of another high lama, the Noyon Khutuktu Danzanravjaa, in Outer Mongolia who was a very influential reincarnate lama in southern Mongolia. Japan's support in promoting his reincarnation is a very interesting research subject, which requires a more in depth study as well. The Japanese put him at one of the largest Inner Mongolian Temples on the border with Outer Mongolia (Ibid., p. 271). However, this reincarnate held far less spiritual leverage to attract the Mongols of Outer Mongolia under his political influence. Only local Inner Mongols were happy to have a new reincarnation of the high Khutuktu, because it brought a purely spiritual significance to them at the local level.

As the years progressed into the late 1930's and early 1940's, the Japanese implemented educational, organizational/structural, and reincarnate reforms in Mongol Buddhism in order to further their political, economic, and territorial interests in the region. They first sought to reform Mongol Buddhism through re-educating young Mongol lamas both in Mongol territory and in Japan, then to structurally change the hierarchical structure of the Mongol Buddhist church by establishing a new oversight office, and third attempted to influence the search and political/religious positions of key reincarnates such as the Jebtsun Damba Khutukhtu, the Dilowa Khutukhtu, and the Noyon Khutukhtu. In the end, however, given the regional nature of Mongol Buddhism, a regional religion that transcends political borders, the consolidation of power by the Bolsheviks in Russia and the Mongolian People's Party in Outer Mongolia, and the chaos in China at the time, the Japanese policy of using Buddhism to further its interests proved to be too diverse and unmanageable in consolidating political power in the region.

Conclusion

Buddhism in Mongolia played a very significant role in promoting nationalism amongst different ethnic groups of the Mongols in the early 20th century as her dominant neighbors farther advanced into Mongol territories. In reaction to Russian, Chinese and later Japanese strategic interests and territorial expansions, the Mongols developed nationalist movements throughout Buryat, Eastern (Manchurian), Inner Mongolia and Outer Mongolia. These nationalist movements coincided with Japan's advancement in Inner Asia and they, to a large extent, manipulated such movements and even promoted them for their political and cultural policies towards the local Mongols in the 1920s and 1930s.

We examined in particular Japan's role in attempting to provoke Mongol nationalism in her favor, by promoting Buddhism in the above mentioned Mongol territories. Buddhism was an integral part of Mongol nationalism and the Japanese attempted to strategically use Buddhism for their political agenda in continental Northeast Asia. In the first part of the paper, I provided a brief historical account of Mongolia's external political context and the causes of nationalist sentimentalism and movements amongst the Mongols. The second part of the paper examined how the Japanese first approached the Buryat Mongols in the early 1920s and attempted to manipulate Buddhism in reviving nationalism. Through such provocative nationalist activities based on Buddhism among the Buryat Mongols, Japan

sought to expand its political influence in the region and at the same time hoped that such actions would stop the Bolshevik expansion in the Far East.

The third part of paper investigated Japan's policy towards supporting Buddhism and reforming monastic institutions in Eastern (Manchurian) and Inner Mongolia in order to promote the newly established government of the "Great Mongol State" under Japan's guidance in the 1930s. Such political and cultural moves, Japan expected, would offer the Mongols especially those in Outer Mongolia who experienced brutal religious oppression at that period, an alternative to Communism.

This study shows that Japan's attempts failed not only to win extensive support from the Mongols in different regions, but also to ease the political pressures from both the Chinese and Russians (the Soviet Union). Nevertheless, Japan aimed at spreading its political and cultural influence amongst the Mongol ethnic groups such as the Buryat, Inner, Eastern and Outer Mongols. A very significant part of such objective was about promoting nationalism by supporting the local religion-Buddhism among the Mongols so it could in return endorse Japan's expansion policy and encourage anti-socialist feelings amongst the Mongols.

References

Alonso, Mary E. 1979. *China's Inner Asian Frontier*, The Peabody Museum of Archaeology and Ethnology, Harvard University Press.

Cheney, George A. 1968. *The Pre-Revolutionary Culture of Outer Mongolia*, The Mongolia Society Occasional Papers, The Mongol Society, Bloomington, Indiana.

Etherton, P.T. and Tiltman, Hessel H. 1932. *Manchuria: The Cockpit of Asia*, Jarrolds Publishers, London.

Gubler, Greg. 1968. *Lama Reform and Asian Development with a Case Study of Shingon's Program at Mt. Koya*.

Holtom, D.C. 1947. *Modern Japan and Shinto Nationalism: A Study of Present-Day Trends in Japanese Religions*, The University of Chicago Press, Chicago, Illinois.

Jagchid, Sechin. 1999. *The Last Mongol Prince: the Life and Times of Demchugdongrob, 1902-1966*, Center for East Asian Studies, Western Washington University.

Katsumi, Nakao. 1999. *Between Militarism and the Academy: Japanese Policy on Islam in Inner Asia Before the War,* Wako University.

Lattimore, Owen. 1955. *Nationalism and Revolution in Mongolia*, The Institute of Pacific Relations, E.J.Brill, Leiden, Netherlands.

———. 1932. *Manchuria: Cradle of Conflict*, The Macmillan Company, New York.

———. 1962. *Studies in Frontier History: Collected Papers 1928-1958*, Mouton & Co, Paris.

———. 1934. *The Mongols of Manchuria: Their Tribal Divisions, Geographical Distribution, Historical Relations with Manchus and Chinese and Present Political Problems,* The John Day Company, New York.

Morris, Ivan. 1963. *Japan 1931-1945: Militarism, Fascism, Japanism?* A Volume of Problems in Asian Civilizations, D.C. Heath and Company, Massachusetts.

Phillips, G.D.R. 1942. *Russia, Japan and Mongolia*, Transatlantic Arts.

Royama, Masamuchi. 1929. *Japan's Position in Manchuria*, Institute of Pacific Relations, Japan.

Rupen, Robert A. 1964. *Mongols of the Twentieth Century*, Part I, Indiana University Publications, Indiana.

Tan, Tennyson. 1932. *Political Status of Mongolia*, The Mercury Press, Shanghai.

Topolsky, Jerzy. 1976. *Methodology of History*, Polish Scientific Publishers, Warszawa.

COMMENTARY:
Biophilia for happiness and environmental ethics

Yoko Katsui[1] & Nader Ghotbi[2]

Abstract

The increasing awareness of the public about the role of human activity in environmental problems such as "climate change", together with the lack of a firm socio-political response to contain these problems, have created an opportunity to introduce environmental ethics as the forerunner of bioethics. Economic prosperity has a world-wide demand but an understanding of the instinctive bond of human nature with the living systems may improve other aspects of human wellbeing such as happiness; as such, happiness can be achieved not just by economic development but also through the enhancement of our innate love for life and living systems. Biophilia may be the missing key of environmental ethics for elaboration on the lifestyle changes needed in the pursuit of happiness. The experience of Bhutan with its innovative measure of "Gross National Happiness" based on human development and environmental conservation provides a good example in the Asia Pacific region. However, as long as environmental conservation is not regarded as a common moral value for all peoples and cultures around the world, the socio-political pressure for change may not be enough to protect our ecosystems and their life support systems.

Keywords: Asia Pacific region, Bhutan, Bioethics, Biophilia, Ecosystems, Environmental ethics, Environmental problems, Gross national happiness, Happiness

Introduction

The failure of regulatory mechanisms to contain harmful human interference in ecological systems, such as the pollution of the Earth's atmosphere with increasing levels of greenhouse gas emissions, is associated with neglecting the ethical value of the environment and/or giving priority to the socio-political impacts of economic development. Our best hope to reverse the current levels of environmental pollution and degradation is through an education that can motivate environmentally informed citizens to pursue conscientious choices in life. Advances in environmental sciences have informed many people about the delicate life support systems on Earth, but the socio-political motivation to do something about it has been rather limited, and environmental ethics may be our last hope. In that sense, environmentally hostile human activities leading to ecological degradation would be considered as having negative ethical value and would lead to condemnation as with any socially immoral act. However, the continuation of anthropocentric trends in our value system suggests that our moral values especially in the area of ethics of life and living systems need to be refocused on the environment.

The use of the term bioethics goes back to 1927, by Fritz Jahr who was a pastor, philosopher, and educator (Sass, 2007 and Goldim, 2009). In an article that he published in a German magazine called "Kosmos" (*Bioethics: A Panorama of the Human Being's Ethical Relations with Animals and Plants*), he suggested a bioethical imperative with the same implications of Immanuel Kant's universal moral imperatives, which would be extended to include all forms of life. However, this article was largely forgotten and the evolution of the term bioethics took place in the medical field. Thus, for a long time the concept of bioethics mainly evolved in the biomedical context and the term bioethics was used mostly in reference to medical issues. The evolution of bioethics through the 1970's and 1980's resulted in its current inclusion of the three main areas of "medical ethics", "ethics of biotechnology" and "environmental ethics" (Bryant, 2005). Although the bioethics education has traditionally been based on medical ethics, many concepts of medical ethics have been gradually integrated into medical practice laws & regulations. On

[1] Fukuoka Social Medical Welfare University, Gojo 3-10-10, Dazaifu City, Fukuoka 818-0194, Japan
[2] Corresponding author: College of Asia Pacific Studies, Ritsumeikan Asia Pacific University, Beppu city, Japan; e-mail: nader@apu.ac.jp

the other hand, most legal frameworks proposed so far to contain harmful human interference in ecological systems, such as increased CO_2 emissions, have failed miserably. This failure of regulatory mechanisms reflects an unbalanced value system which assumes economic development is more important to our happiness than the environment. Education can help correct this value system and the concept of biophilia may be the keyword to strengthen the status of environmental ethics (Oskamp, 2002). This article was mainly authored to examine such a possibility.

Some philosophers have considered happiness to be the major purpose of living a life, while others believe there are other inherently good things that motivate people in their lives and may not necessarily lead to happiness, such as knowledge, friendship, and even beauty. This is especially an important point in environmental ethics because the issue of whether the environment has intrinsic value as well as instrumental value remains controversial for many critics. Does the environment have value mainly because it is an instrument to provide for our needs and enable us to attain happiness through its consumption? Or is it possible that the beauty of the environment and the knowledge hidden in its complex networks and systems carry intrinsic values that are also important? Is there a morally unacceptable limit to environmental damage caused by the instrumental use of the environment and its resources? And what if protecting and conserving the environment can help with a more sustainable pursuit of happiness for more people?

Methodology

We have searched for and collected empirical evidence in literature to support the hypothesis that caring about the natural ecosystems can improve human well-being, particularly happiness. Our assumption is that happiness represents a basic concept that can influence policy-making for the betterment of human wellbeing in more fundamental ways, as compared with conventional measures such as economic prosperity; therefore the experience of the small country of Bhutan in South Asia became especially relevant to our study.

We searched the literature using well-known academic search engines for the keywords happiness, environmental conservation, environmental ethics, and biophilia. The biophilia hypothesis is technically difficult to investigate based on limited empirical evidence available; this is related to the intuitive nature of this hypothesis and its reliance on observations over relatively small samples as compared with the majority of human population who live under the influence of many confounding lifestyle and socioeconomic factors associated with modern civilization.

We also realized the difficulty of doing analytical research using a very general concept such as happiness; one solution was to use the linguistic differences of the English term with its counterparts in the Japanese language.

Findings

What kind of empirical evidence can be collected to support the biophilia hypothesis? It appears that some researchers have already collected the needed evidence. For instance, Roger Ulrich has published a research article in which a statistically significant association was found between having access to natural sceneries & the well-being of a group of patients who were recovering from a specific surgical procedure (Ulrich, 1986). In further studies performed by Ulrich & other researchers, access to natural views was shown to be associated with a reduction of stress and anxiety, and an improvement of symptoms such as a feeling of boredom; productivity was also reported to have increased significantly.

It has been said that: “Everyone wants a room with a view” (Clay, 2001); we are all familiar with the fascination of humans with natural views and a desire to look at sceneries that are not artificial. How is that natural scenes are simply taken as beautiful? How is it we enjoy watching these scenes and feel happy about spending our time in time or

watching them? One reason could be that the human mind evolved over millions of years and thousands of generations in natural settings that were needed for human survival, and may now be still important for mental health and a feeling of fulfilment that they used to provide for our ancestors (Kaplan and Kaplan, 1989).

E. O. Wilson offered an intuitive answer to this puzzle through a book he published in 1984 under the name "Biophilia". In this book he explained how views of nature could have positively influenced our physical and mental health. Wilson defined biophilia as our natural inclination to focus on life & living systems. He hypothesized that the human brain should have evolved in a setting that provided strong inclinations towards nature, because that would improve the chances for survival & reproduction (Wilson, 1984). The central pillar in Wilson's biophilia hypothesis is that the gradual evolution of humans in nature established an innate inclination towards living systems and the processes that supported therm. This claim has been supported in various researches; an increasing body of research has demonstrated the improvement of mental health following human exposure to natural views and living environments (Gullone, 2000).

The small country of Bhutan in South Asia with a population of about 716,000 in an area of 38,394 sq km provides a good example of national policies based on happiness. Since the late 1980s, the Bhutan government has focused its policy-making on preservation of the cultural traditions and natural ecosystems for the ultimate purpose of improving the Gross National Happiness (Uddina, 2007). The government's objectives of development mainly consist of improving the emotional wellbeing of the population (reflected in their qualitative happiness), preserving the nation's cultural heritage, and protecting its environmental and natural resources (Royal Government of Bhutan, 1991). Bhutan was ranked eighth in an international comparative study on subjective wellbeing which included 178 countries (White, 2007). The interesting fact was that Bhutan was the only developing country that had made it to the top 20 of the list, and also was the happiest country in Asia.

Discussion

What is the value of the environment? Even if we disregard the intrinsic value of the environment due to the controversy surrounding it, the instrumental value to humans is still more complex than simply providing material resources for economic development; this value may refer to the supplying of resources, as well as amenity value, aesthetic value, and possibly an innate human need (biophilia). If there is an innate human need for the living environment, true happiness may not be achieved without fulfilling this natural need. Therefore, disregarding the controversy over the instrumental vs. the intrinsic value of the environment, we may still demonstrate that the environment is so close to us that environmental conservation and our happiness are intertwined. The biophilia hypothesis first suggested by E. O. Wilson makes its mark here when it proclaims that our innate love of life and living systems is based in our genes, and our happiness cannot be achieved without this innate love and need. So can humans pursue happiness in the natural environment? Is there some empirical evidence to support such a claim?

We also need to define the philosophical meaning of the term happiness because the general concept of happiness in the English language may be too broad. "Happiness" may refer to a temporary emotion of joy, or to a mood which persists for a longer period of time; it can be about an outlook for the future, achievements of the past, or satisfaction over a current situation; it can be a feeling within an individual, or be reflected from members of a group and how they relate to one another. The discipline of psychology has revealed that three components - physiological, cognitive and cultural- shape our primary emotions including joy and happiness. For example, as an emotion, the feeling of happiness in an individual is obviously under the influence of one's subjective appraisal of the situation; optimism can

improve happiness while pessimism can cause anxiety and unhappiness. As a positive emotion, happiness motivates people to struggle in life, and in this sense, pleasure and happiness have often been mentioned together. In a deeper sense, happiness may refer to a feeling of satisfaction that one may perceive when one is moving towards self-actualization, the way Abraham Maslow described in the pyramid of needs. In this view, happiness is a relative concept as it depends on how people perceive their success in realizing their needs, desires, and internalized values relative to the external demands and limits that are set against them. Perhaps this is why contentment has been considered as a necessary element for lasting happiness; learn to be content when facing shortages.

In languages other than English, there may be various words to refer to each of these meanings. The vocabulary of a language may affect how we think about the concept represented by the used terms (Tohidian, 2009). Therefore when discussing happiness in a certain language the special linguistic implications of the term as used in different contexts need to be considered. An example is in the use of the word 幸福 (koufuku) and 幸せ (shiawase) in Japanese which convey a deeper meaning as compared with 嬉しさ(ureshisa) and 喜び (yorokobi). This helps avoid a confusion of the term happiness as used by philosophers with for example momentary feelings of joy and pleasure including “chemical happiness” induced by drugs. The human pursuit of happiness should reflect on this deeper and more lasting sense of human needs rather than his unsustainable achievements.

However, our modern ways of living based on the industrialized Western culture is in contrast to our evolutionary history (Simaika and Samways, 2010). Evolutionary psychologists have warned us that if the current trends of environmental destruction continue, they can also raise significant challenges to our mental and psychological health (Ferrer-i-Carbonell and Gowd, 2007). Caring for the environment brings about happiness (Grinde, 2002) and happiness can be achieved not only by economic development but also by the innate love of life & living systems.

The environmental perspective of the Bhutanese plan is unique in the way that everyone’s wellbeing is seen as depending on the preservation of the environment, and not just the future generations. Preservation of the environment implies the conservation of natural resources such as forests, water resources, as well as the wildlife and their natural habitats (Uddina,2007). The emphasis is no longer on production and consumption, but more on a sustainable relationship with one’s environment and culture for attaining a more important goal of “happiness”. The emphasis of policy-makers is on the well-being of the citizens rather than their possessions; and this is the primary reason that they substituted the Gross National Product (GNP) with their own innovative indicator of Gross National Happiness. They believe that if a goal such as happiness can be stated from the beginning, it is possible to plan the appropriate policies to achieve it, and that is why happiness needs to be stated frankly. There is no doubt that Bhutan over the last few decades has improved significantly in a lot of different measures of health and well-being of its people. However, the experience of Bhutan is still rather more like “research in progress” and even if it is proven to be a success in long-term, there is no way to guarantee that other countries can benefit from the same policies (Revkin, 2005). Nevertheless, a number of developed countries including the U.K. and Canada have already started to look into the social changes that can be made with this kind of change in perspective.

Happiness can be achieved through an understanding of the instinctive bond of human nature with the living systems; it can be based on our innate love of the living environment, rather than the concretes of economic prosperity built on the ruins of the environment. However, as long as environmental conservation is not regarded a common moral value for all peoples & cultures around the world, the pressure for change will not be enough to push for strong and effective action. Nevertheless, an increasing awareness of the public about the adverse impact of environmental degradation on human life has created an opportunity to introduce environmental ethics as the forerunner of bioethics. By introducing the environment in our value system as a moral good by itself, not a commodity for consumption, we

may provide a new policy perspective that looks at the environment as a necessary element for human wellbeing. Happiness is the policy perspective that was selected by the government of Bhutan and some empirical evidence to support that has already been attained. We must follow the impact of similar environmentally friendly policies in other developing and developed countries to see whether they can protect the environment and as such improve their nation's overall wellbeing and happiness, as well.

References

Bryant, J.; Baggott la Velle, L. and Searle, J. 2005. *Introduction to Bioethics*. England: John Wiley & Sons.

Clay, R. 2001. Green Is Good for You. *Monitor on Psychology* 32: 40-42.

Ferrer-i-Carbonell, A. and Gowd, J.M. 2007. Environmental degradation & happiness. *Ecological Economics* 60: 509-516.

Goldim, J.R. 2009. Revisiting the Beginning of Bioethics: The Contribution of Fritz Jahr (1927). *Perspectives in Biology and Medicine* 52(): 377-380.

Grinde, B. 2002. Happiness in the Perspective of Evolutionary Psychology. *Journal of Happiness Studies* 3: 331-354.

Gullone, E. 2000. The Biophilia Hypothesis and Life in the 21st Century: Increasing Mental Health or Increasing Pathology? *Journal of Happiness Studies*, 1: 293-322.

Kaplan, R. and Kaplan S. 1989. *The Experience of Nature: A Psychological Perspective*. New York: Oxford University Press.

Oskamp, S. 2002. Environmentally Responsible Behavior: Teaching and Promoting It Effectively. *Analyses of Social Issues and Public Policy* 2: 173-182.

Revkin, Andrew C. 2005. A new measure of well-being from a happy little kingdom. New York Times (4 October).

Royal Government of Bhutan. 1991. *Seventh Five Year Plan*, Main Plan Document, p. 22.

Sass, H.M. 2007. Fritz Jahr's 1927 Concept of Bioethics. *Kennedy Institute of Ethics Journal* 17: 279-295.

Simaika, J.P. and Samways M.J. 2010. Biophilia as a Universal Ethic for Conserving Biodiversity. *Conservation Biology* 24: 903-906.

Tohidian, I. 2009. Examining Linguistic Relativity Hypothesis as One of the Main Views on the Relationship between Language and Thought. *Journal of Psycholinguistic Research* 38: 65-74.

Uddina, S.N., Taplina R., and Yu X. 2007. Energy, environment and development in Bhutan. *Renewable and Sustainable Energy Reviews* 11(9): 2083-2103.

Ulrich, R.S. 1986. Human responses to vegetation and landscapes. *Landscape and Urban Planning*. 13: 29-44.

White, Adrian G. 2007. A Global Projection of Subjective Well-being: A Challenge to Positive Psychology? *Psychtalk* 56: 17-20.

Wilson, E.O. 1984. *Biophilia*. Cambridge: Harvard University Press.

Zurick, D. 2006. Gross National Happiness and environmental status in Bhutan. *Geographical Review* 96: 657-681.

REVIEW:

The impact of climate change on the fashion industry in Korea

Mi Young Son [1]

Abstract

Korea's four distinct seasons have become less distinctive due to climate change; new weather patterns have affected the kind of clothes people wear, and the production and sales activities of fashion companies. This study has used the fashion system as the basic framework to examine the changes in Korean cultural symbols and values following climate change, and how these symbols and values have influenced fashion consumption behaviour and the activities of fashion companies. Climate change has introduced new cultural values and symbols, such as "season-less," "multi-function," and "sustainable/green" which have resulted in new fashion products and dressing methods, such as the layered look, season-less items, multi-functional items, and sustainable designs. Fashion product planning under the influence of these symbols and values has gone through a transition toward quick response planning and production, which has greatly cut down the time spent on planning and production. Information regarding short- and long-term weather forecasts and climate change has become increasingly important in the planning, production and sale stages of fashion products. Lastly, a growing awareness of extreme weather events, such as ensuing natural calamities, has led the fashion industry to apply the concept of sustainable development to the overall industry; fashion has somehow turned into a green/sustainability movement. Efforts toward sustainable development are being pursued in the design, production, distribution, consumption and disposal stages of fashion as well as in the management of fashion companies.

Keywords: Climate change, Fashion system, Green, Multi-functional, Season-less, Sustainable design

Introduction

Nowadays, media reports on extreme weather events are made daily. In 2006, Al Gore released a documentary film called "An Inconvenient Truth" to inform the world about the dangers of climate change and the need for immediate action. It warned the public that the earth would face irreparable damages if greenhouse gas emissions were not cut back immediately and argued that today's generation is obligated to protect the environment for the future generations (Park 2010: 2). The argument that the earth's average temperature is rising has caused a lot of controversy. A highly disputed argument is that climate change might be a natural phenomenon and not due to greenhouse gas emissions from human activities. However, the Intergovernmental Panel on Climate Change (IPCC), made up of 3,000 meteorologists and oceanographers from across the globe, estimated with about 90 percent probability that climate change was caused by human activities (Park 2010: 2).

According to the IPCC Fourth Assessment Report, global warming has been the main culprit of climate change since the beginning of the twenty-first century; this report explained that global warming leads to climate change and extreme weather, such as rising sea levels, cold/heat waves, changes in the precipitation level, flood/draught, typhoons, and dust storms (Shin 2011: 88). Global warming has gained speed with the growing use of fossil fuels, such as coal and oil, since the 20th century, and abnormal weather activities became more frequent with increasing deforestation of tropical rain forests in the 21st century (Lee and Park 2009: 124-125). Global warming continues to affect the ecosystem through increasing occurrences of flood or draught, acceleration of deforestation and desertification as well as increase of infectious diseases (Kim and Lee 2006: 226).

[1] Department of Clothing and Textile, Korea National Open University, Seoul, Korea e-mail: pkt2000@knou.ac.kr

Temperature or precipitation levels that are beyond normal weather conditions can be meteorologically defined as abnormal weather patterns (Jeong 2010: 6). In other words, if big changes in the temperature or precipitation level continue for a certain period of time, such instances can be deemed as abnormal weather. Therefore, weather conditions that were never observed in the past thirty years are identified as abnormal weather (Shim 2008: 34). Recent cold waves and heavy snowstorms observed in Asia, North America and Europe, as well as heavy rainfall in the Southern Pacific and Africa can be deemed as abnormal weather patterns. Abnormal weather activities can be caused by natural causes, such as changes in the atmospheric general circulation, changes in solar radiation energy and declining quantity of solar radiation, or by man-made causes, such as the increasing greenhouse effect due to growing use of fossil fuels, deforestation due to human activities, and emission of pollutants.

Since industrialization began, the global average temperature has increased by 0.74°C. The IPCC's climate experts assume that the natural, social and economic systems would be able to adapt themselves to a global warming of up to 2°C. An increase of more than 2°C would exceed the adaptation capacity and would cause dramatic effects. Climate change and the accompanying process of global warming have diverse consequences for ecosystems and, of course, also for human beings (Michelsen and Riechmann 2008: 19). Climate change affects agricultural produce as well as the overall lives of people. Erratic weather patterns are causing damage in various ways, such as increasing travel cancelations in the tourism industry, lowering outdoor activities and decreasing the sales in the tourism, sports, art and fashion industries (Jeong 2010: 8).

This study aims to examine how external environmental factors, such as climate change and erratic weather, have affected the Korean fashion system which itself is under the influence of cultural symbols and values of the Korean culture. We shall examine how such symbols and values have influenced the behaviour of fashion consumption and affected the activities of fashion companies, and see how climate change or erratic weather patterns affect fashion companies and the way people dress in Korea.

Fashion companies have been struggling with the impact of abnormal weather patterns and erratic changes of climate since the 1990s. Companies that successfully adapted to such climate change recorded strong sales whereas companies that failed to adapt recorded otherwise. In particular, seasonal items that were customarily introduced to markets at certain points every year recorded sluggish sales due to warmer winters and prolonged summers. Many companies have experienced a sharp decline in sales due to their failure to introduce items suitable to shorter springs and autumns caused by erratic weather patterns (Jang and Lim 2003: 124).

On the other hand, fashion companies that actively responded to climate change by utilizing weather forecasts or by implementing weather marketing strategies have experienced an unexpected increase in sales. Large-scale retailers, such as department stores and discount stores, are more sensitive to climate change, so they carry out weather merchandising or management strategies that correspond to customer demands through weather sensitive marketing efforts (Shin 2011: 86-87). For example, fashion companies have utilized long-term weather forecasts to determine the needed items, the quantities, and the optimum timing of production and market release. Also, medium and short-term forecasts provide essential information for fashion stores in their daily inventory management, sales management and visual merchandising (VMD) management.

Nevertheless, uncertainty is growing in the consumers' purchasing behaviour because of weather changes. Some fashion companies have focused a great attention on changes in the consumers' purchasing behaviour and changes of abnormal weather to maintain a stable revenue (Jang and Lim 2003: 4-5, Shin 2011: 91).

Methodology

This paper is based on literature review and a qualitative study of the fashion system. The fashion system is an important conceptual framework through which the process of fashion can be integrated for explanation. Although clothing and textile scholars continue to discuss the level of social analysis, driving factors of change in the fashion market, continuity and transience, the fashion system is one of the best conceptual frameworks to use when explaining about the fashion process. The concept of the fashion system began with the work of McCracken (1986: 71):

> "In the usual trajectory, cultural meaning moves first from the culturally constituted world to consumer goods and then from these goods to the individual consumer. Several instruments are responsible for this movement: advertising, the fashion system, and four consumption rituals."

This study seeks to examine the process of how external environmental changes are accepted by the fashion system and fashion consumers. That is, this study will examine what kind of cultural values and symbols climate change has created and how climate change influenced the fashion system and consumers' clothing behaviour.

The framework of this study, as shown in Figure 1, is based on applying external environmental changes, i.e. climate change, to the fashion system and culture production system. In this study, environmental changes that affect an individual's consumption and the activities of the industry and companies within the fashion system are inserted as exogenous variables to the fashion and culture production system that was introduced by McCracken (1986) and Solomon (1988). In other words, new cultural values and symbols are formed due to external environmental changes, and new cultural values are actualized as fashion products through the fashion system; this is followed by the acceptance of new cultural values and symbols through the purchase and wearing of such fashion products by fashion consumers.

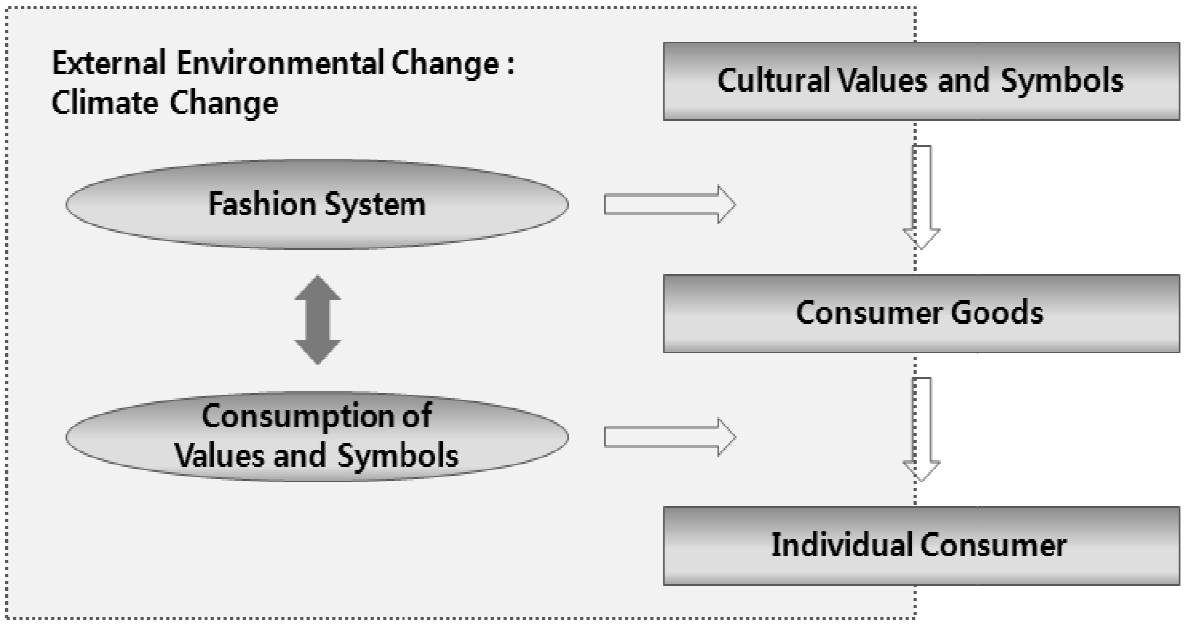


Figure 1: External environmental change and the delivery system of cultural symbols; source: the author

Solomon introduced the culture production system that emphasizes the connection between consumers and the macro culture based on McCracken's concept. Solomon explained the need for (1) a creative subsystem that generates new symbols and products, (2) a managerial subsystem that selects, makes tangible, mass-produces and distributes new symbols and products, and (3) a communications subsystem that gives meaning to the new products and provides a symbolic set of attributes. Solomon added that the fashion system, which creates symbolic meanings, is made up of all people and organizations that are involved in transforming the meanings created by the fashion system into cultural goods (Park and Kim 2004: 3-4).

Hamilton (1997: 164-165) explains that fashion designers in the fashion system create designs based on novelty, beauty and social reflection, which can be turned into fashion, whereas mass fashion producers and retail producers reproduce or recreate such designs into products that correspond to the markets to which they belong. In particular, such reproduction or recreation is based on novelty, cost effectiveness and product turnover rate, which shows that mass fashion producers and retail producers are pressured to follow different standards compared to the designers. As such, Hamilton stressed the importance of the macro-perspective, pointing out that an individual's micro-perspective on fashion is affected by the macro-perspective, i.e. the arbiters of the cultural and fashion systems.

Findings

The designs created in the last 250 years have been culturally received as a form of an aesthetic language (Jeon 2011: 448). That is, design has the power and strength to suggest and actualize new notions, and a meme and medium that delivers culture, which in turn brings about new behaviour (Kwan 2011: 35-36). Let us examine what kind of values and symbols have been created by external environmental factors, such as climate change:

1) "Season-less": Climate change has rendered the concept of the four seasons somewhat vague. Springs and autumns have become shorter, whereas summers and winters have become longer and lost their seasonal attributes. The academia, industry and consumers are paying close attention to the changing concept of the four seasons (Lee and Park 2009: 125-126). Most fashion products are categorized by season. However, as seasons are becoming vague in their concept, the newly-coined term "season-less" has become the new consumer/cultural value and symbol, and is affecting fashion consumption behaviour. As a result, the fashion system proposes, produces and supplies more "season-less" products.

The introduction of the concept "season-less" has brought about change not only in the way people dress but also in the designs of fashion products. New items that were never seen in the past are increasingly worn all year round regardless of the season (Lee and Park 2009: 125). In addition, items have been designed, known as "double items" that can be worn for two consecutive seasons, such as spring-summer or fall-winter. There are season-less items, such as trench coats, jumpers, jackets and blouses that are adjustable to weather changes. These items were purchased and worn throughout all four seasons. Moreover, as the traditional meaning of the four seasons became more ambiguous, in-between fashion, such as "clothes for winter-like spring" or "clothes for summer-like spring," that can be worn for longer periods have become fashion trends. The spring and autumn periods have become very short in the last 20 years and the concept of clothes for spring or fall have disappeared (Fashion Channel 1 November 2008, The Suwon Ilbo 8 March 2012).

2) "Multi-function": Another new concept that was introduced in the fashion system to respond to climate change is "Multi-function"; it refers to a product that is changeable according to various purposes, uses and taste through

repeated change and recovery (Na, Kim and Lee 2011: 121). These items are also called "transformer items" as their forms are changeable according to weather changes. The adjustable sleeves of a jacket or blouse, detachable vest and lining of a jumper, and detachable hood of a jacket, are examples of multi-function items. New terms such as "two-way", "changeable", "transformable", and "diversification" have been introduced in the fashion system with the rise of environmental issues; the concept "multi-function" is implied within all such terms.

Some items can protect the human body by actively responding to environmental changes through multi-functional changes (Lee and Park 2009: 133). Lee and Park (2009: 124) explained that multi-function fashion is transformable according to the various types of purposes, uses and functions, and utilizes complex designs. A single design may transform to satisfy a purpose other than the design's main use and even multi-styling is possible by changing the form of the design according to the clothing method of the wearer. Other examples include reversible design functioning as two designs in one; designs with detachable sleeves, hoods or collars; long trousers that are changeable into shorts; and rain coats that are changeable into a bag.

Recently, a women's clothing company in Korea increased the proportion of transformer/multi-weather products that can be worn from winter to spring (Fashion Journal 9 February 2012). Head, a fashion brand of Kolon Industries, introduced the successful "transformer jacket," a down-filled windbreaker that can be changed into five different styles. This product can be worn in various forms, such as a vest (with the sleeves detached), windbreaker, down jacket and inner jacket (MK Business News 15 November 2010).

3) "Sustainable" and "Green": One of the concepts that were introduced during the endeavours to resolve environmental issues such as climate change is the concept of "sustainability," which is a new paradigm and value for the society in the 21st century (Jeon 2011: 449-445). "Sustainability" was first introduced in 1987, in Brundtland Commission's report titled, "Our Common Future". This concept is about the development and use of natural resources in a way that brings about the best result not only for the current generation but also to the future generations and the environment (Michelsen and Riechmann 2008: 43-44). Sustainable development, which seeks to improve the quality of life within the environmental limit of the ecosystem, is a development process as well as a goal that equally pursues economic development, societal development and environmental protection, all at the same time (Hwang 2011: 48).

For a long time, the fashion industry was considered as one of the main culprits of environmental pollution. In fact, the fashion industry has been defined as an industry that goes against sustainability due to causing water and air pollution from thread and fabric production, chemical dye treatment of materials and end products, fast changing trends, planned obsolescence, waste landfill and incineration, and dumping waste in third world countries (Khan, Son and Cho 2011: 294-297).

The fashion industry is staring to introduce the concept of sustainable design, but in a perspective that is more focused on its ecological nature rather than sustainability itself; it takes the relationship of natural resources and eco-friendliness into account rather than mainly focusing on environmental resource conservation. Sustainable design is to design for the environment and people; a general concept that takes sustainable relationships among the economy, society, ethics and ecology into consideration (Kim and Lee 2006: 232). The concept "sustainable" is muddled up into numerous terms in the process of actualizing designs. Examples of such terms are as follows: environmentally-friendly design, ecology design, green design, well-being design, eco design, slow design and ecological design.

With the rise of environmental awareness during the 1990s and the 2000s, eco fashion designs that started in the 1970s are going beyond just using natural materials and motives from nature. Since then, eco design has developed into sustainable fashions that seek to reduce carbon emissions during production, distribution and disposal process and

to pursue ethical fashion, such as fair trade (Shin and Hong 2010: 874). Furthermore, fashion companies are establishing an environmentally-friendly supply network based on eco-friendly systems that were introduced with their acceptance of the concept of sustainable management (ISO 24000). In other words, fashion companies are looking for ways to establish an environmentally-friendly supply network that features a sustainable process of product design, production, sale, use, recycling and disposal (Hong and Kim 2011: 1073).

Chang (2010: 154) suggested that designs would progress toward those open to recycling, seeking to use a minimum amount of materials, use innocuous materials, save energy resources, and could be used semi-permanently and produce a minimum amount of waste. Kwan (2011: 39-40) has suggested that fashion design should aim to minimize damage to the environment during the entire process from production to consumption and should move towards improving the functionality, economic feasibility and beauty of the product. Sustainable fashion design, which applies recycling and reusing methods of the existing eco designs, has made it ever more possible to create and develop a variety of styles and products with the development of science and technology. For example, fashion brands that took sustainable fashion design into consideration not only use design in creating products, but also reuse and recycle the same design so that a whole new product is created after the use of the initially created product (Kwan 2011: 39-40).

4. "The Layered Look": As the four seasons started to lose each of their seasonal distinction, it stimulated many changes in clothing method, one of which is the layered look. With the seasons losing their seasonal distinction, consumers are starting to dress according to the weather, rather than the season. As an active response to abnormal weather patterns, Bean Pole, a fashion brand of Cheil Industries, created a task force team in 2010 as an effort to actively deal with erratic weather patterns. The team continues to endeavour in weather management and in developing new designs, such as the layered look and special fabrics, including heat-storing fabric, cooling fabric and ultra light fabric (Fashion Journal, 9 February 2012). Jackets, trench coats, jumpers have become trendy items with the layered look, which is about wearing layers of thin, light-weight clothing. In particular, cardigans, mufflers and boots have gained great popularity (The Dong-A Ilbo 12 December 2007).

Discussion

Abnormal weather patterns are becoming more evident in Korea, in the form of the four seasons becoming less distinct, a rise in the average temperature, and frequent occurrences of abnormal weather activities. Springs and autumns have become shorter, summers have become longer and winters are not as cold as in the past. One newspaper article (The Dong-A Ilbo 12 December 2007) compared Seoul's number of days of summer and winter in the 1920s and 1990s, and noticed that the number of days of summer in the 1990s were 16 days longer than that in the 1920s, whereas the number of days of winter in the 1990s were 19 days shorter than in the 1920s. Furthermore, the article predicted that the number of days of summer in the 2090s was expected to be 45 days longer than that in the 1920s, and the number of days of winter in the 2090s to be 63 days shorter than in the 1920s.

In their study of the relationship of the scope of behaviour in connection to the probability of weather forecasts, Lee and Lee (2007: 483) explained that certain decisions are made based on weather forecast data. Khan, Son and Cho (2011: 293-299) described that climate change and abnormal weather patterns have an influence on consumers' clothing behaviour; that is, climate change and abnormal weather patterns affect how people dress and purchase clothing products. They also have an effect on fashion companies' production and sale of fashion products, and cause the fashion industry overall to pay more attention to environmental issues. Lee and Park (2009: 124) observed that although the fashion industry was making efforts to develop designs for fashion items that could respond to climate

change, it still faced difficulties in understanding the unpredictable environmental factors and applying them in their business decisions.

Korea's fashion industry has experienced damages for several years due to climate change and erratic weather patterns. As a result, the industry has introduced various measures to respond to climate change. Such measures have brought about changes in fashion items and designs as well as various changes in the development, production and sale of fashion products.

Fashion companies in advanced countries such as the US and Japan have been using the Quick Response (QR) system since 1985 (Chang 1997: 420) as an effort to respond to fast fashion and consumer changes, so that they can produce and sell products following consumer response. Recently, as it became more difficult to predict climate change, "climate change predictions" have become an important variable in the QR system. Unlike the past, fashion companies today have a QR System or a Specialty retailer of Private label Apparel (SPA) system in place so that they can swiftly respond to climate change and consumer demand by completing the entire process from planning to production within one or two weeks (Khan, Son & Cho 2011: 298-299). Fashion companies operate systems that apply actual weather forecasts and utilize the QR system, which determines the production amount after analyzing sales information in real time, for their productions. Moreover, they can adjust the quantity of product orders through systematic weather forecasting system as well as by increasing the spot production rate (Maeil Business News 2007). Through the QR system, fashion companies can adjust the amount of product release as well as the type of items according to the weather (Fashion Journal 2012).

In the process of fashion merchandising, when the planning of a fashion product is completed, it is usually followed by the production stage. The process of planning, production and final consumption can be as short as two weeks or as long as six months. Park and Kim (2004: 5-6) have pointed out that competition in today's fashion industry is shaped by the use of advanced technology and alternative goods, the economy of scale, and the balance of power between suppliers and buyers.

A speedy and precise response toward climate change and unpredictable weather patterns for product planning was recognized as a competitive edge among fashion companies quite long ago; the Dong-A Ilbo (8 November 2001) reported that around 100 fashion companies among those that recorded more than 1 billion won in sales in 2001 were using weather information. The report went on to say that there was competition within the fashion industry in utilizing weather information services, including long-term weather forecast, ever since the heavy snowfall in January of that year. Majima (2008: 502) concluded that the effects of weather on fashion merchandise purchase in the fashion system should be assessed in future research.

Recently, fashion companies utilize the weather forecast in their planning and production to determine product categories, quantities, the period of production and the time of release. Many companies take temperature, precipitation level and the number of days of rainfall into account when adjusting the design, and also in selecting the material, production category and production amount (Jang and Lim 2003: 24, Fashion Journal 2008). K-Weather, a climate consulting firm, explains that "fashion companies adjust the period of product release based on long-term weather forecast and extensive weather information in order to minimize the inventory level", and added that "there are more requests for advice in the winter when companies prepare for the new season" (Fashion Journal 2012).

Climate factors are deemed important in sales management since their effect is significant. In particular, short- and mid-term weather forecasts are used as mandatory information in stock management, sales management and visual merchandising (VMD) management. In the case of VMD management, short-term weather forecasts are used in product display (Fashion Journal 9 February 2012).

Conclusion

Greenhouse gas emissions and climate change due to global warming have been considered serious issues for a long time. They affect many parts of our society and have brought significant changes in the fashion industry. This study used a qualitative approach and literature review to examine how external environmental factors, such as climate change, affect the fashion system. In order to do so, this study first looked into specific examples in the Korean fashion business to observe how climate change affected the clothing behaviour of fashion consumers through the fashion system and what kind of an effect climate change had regarding the activities of fashion companies.

The fashion system is an important conceptual framework through which the process of fashion can be integrated for explanation. The fashion system consists of organizations and people who are involved in transforming the symbolic meanings that were created through it within certain cultural systems. The fashion system was used as the framework of this study to examine what kind of cultural symbols and values climate change has created in our cultural system, how such symbols and values have been transformed into fashion consuming behaviour, and what kind of changes climate change has brought to the activities of fashion companies.

Climate change has affected our overall lives. With regard to the fashion industry, Korea's four seasons have become less distinctive, and the unpredictable and rapid changes in climate have greatly affected the way people dress but also the production and sale of fashion companies. Growing awareness of climate change led the fashion industry to turn to green/sustainable movements, through which new cultural symbols and values, such as "season-less," "multi-function," and "sustainable/green," were introduced.

The above cultural values and symbols were transformed into fashion products, consumption of fashion products, and production and sale of fashion products. In other words, fashion products that reflect such new values and symbols and new clothing methods, have been introduced. Due to the effect of new symbols and values, fashion companies have transformed their exiting production planning process into a Quick Response (QR) system, which has significantly shortened the period of product planning to production. In the QR system, short- and long-term weather forecasts, information on change, and flexibility are considered as important factors.

Lastly, the growing awareness of environmental issues has led the overall fashion industry to expand its application of the concept of sustainable development. The fashion industry is trying to take sustainable development into account in the process of product design, production, distribution, consumption and disposal as well as in company management.

This study looked into the process of how external environmental factors, such as climate change, affect fashion consumers and the activities of fashion companies. However, as the scope of this study is limited to the Korean market, there are limits in generalizing the result of this study to the overall fashion system. Moreover, the discussion of the fashion system can differ according to the level of analysis, depending on whether the study looks at the macro-perspective or micro-perspective, plus the driving force of the fashion market which this study did not delve into. Therefore, further research can be recommended to examine the effects of external environmental changes, such as climate change, on the fashion system in a macro and micro perspective, as well as wider studies that are not limited to the domestic Korean market but are inclusive, applying cases from both the Korean and non-Korean markets.

References

Chang, Eun Seok. 2010. "A Study on the Eco-Sustainable Design for the Up-cycling Product: Focused on the Case Study Products." *The Society of Korea Illusart* 13(3): 145-154.

Chang, Sokan. 1997. "Technical Papers: Quick Response System for the Textile Industry." *Textile Technology and Industry* 1(4): 420-422.

Fashion Channel. "Products for Spring/Autumn in-between Seasons Greatly Reduced." (November 2008). http://www.fashionchannel.co.kr/ (accessed 19 June 2012)

Fashion Channel. "Weather Information, Utilizing in the Planning of Product." (November 2008). http://www.fashionchannel.co.kr/ (accessed 19 June 2012)

Fashion Journal. "The Fashion Industry, Marketing Strategies Key to the Spring Season is 'Weather Management'." (2 February 2010). http://okfashion.co.kr/ (accessed 18 June 2012)

Hamilton, Jean A. 1997. "The Macro-Micro Interface in the Construction of Individual Fashion Forms and Meanings." *Clothing and Textiles Research Journal* 15(3): 164-171.

Hong, In Sook. and Kim, You Jeong. 2011. "LOHAS Marketing Strategy of Fashion Company for Sustainable Image Positioning: Focus on Domestic and Foreign Case Analysis." *Journal of the Korean Society of Clothing and Textiles* 35(9): 1069-1084.

Hwang , Eui Seo. 2011. "A Discussion on Possible Solutions of Environmental Agenda at the Era of Globalization." *The Korean Political Science Society* 19(1): 47-65.

Jang, Eunyoung and Lim, Byunghoon. 2003. "An Exploratory Study on the Effect of Weather Factors on Sales of Fashion Apparel Products in Department Stores." *Marketing Science Research* 12: 121-139.

Jeon, So Yun. 2011. "A Study on Design Context and Agenda for Design of Sustainability." *Journal of Korean Society of Basic Design & Art* 12(3): 445-458.

Jeong, Jun-Seok. 2010. "Nationwide Expansion of Long-Term Forecasts for the Response to Climate Change." *Climate Change Information Center, Newsletter* (Summer).

Khan, Ho-Sub, Son, Mi Young and Cho, Sun-Gyo. 2011. *Fashion Management and Styling*. Seoul: KNOU Press.

Kim, Soo Hyun and Lee, Jae Jung. 2006. "The Concept of Sustainable Fashion Design and the Principles." *Journal of Korean Society of Basic Design & Art* 7(3): 225-237.

Kwan, Jung Suk. 2011. "A Study on the Aesthetic Characteristic and Development Process of Recycle Fashion." *Journal of Basic Science* 28: 33-44.

Lee, Jung-Wo and Lee, Ki-Kwang. 2007. "Study on the Economic Value of Weather Information Reflecting Company's Decision: Focusing on Retail." Proceedings of the Spring Meeting of KMS: 482-483.

Lee, Hyun-Young and Park, Hye-Won. 2009. "A Study on the Multi-Functional Fashion Design: Focused on the Climatic Change and Environment Consciousness." *Journal of Fashion Business* 13(2): 123-135.

Maeil Business Newspaper. "Specific Seasonal Items in Apparel Industry Disappeared." (4 May). http://news.mk.co.kr/newsRead.php?year=2007&no=232460 (accessed 19 June 2012).

Majima, Shinobu. 2008. "Fashion and Frequency of Purchase: Women's wear Consumption in Britain, 1961-2001." *Journal of Fashion Marketing and Management* 12(4): 502-517.

McCracken, Grant. 1986. "Culture and Consumption: A Theoretical Account of the Structure and Movement of the Cultural Meaning of Consumer Goods." *Journal of Consumer Research* 13(1): 71- 84.

Michelsen, Gerd and Riechmann, Marco. 2008. *Internationaler Masterstudiengang 'Sustainable Development and Management': Volume 2: Introduction to Sustainable Development*. Germany: VAS – Verlag für Akademische Schriften.

MK Business News. "Transformers Apparel of Two Season Wear Suits Riese." (15 November 2010). http://news.mk.co.kr/newsRead.php?year=2010&no=622938 (accessed 18 June 2012).

Na, Eun-Mi, Kim, Sae-Bom, and Lee, Kyoung-Hee. 2011. "Formative Characteristic of Multifunctional Eco-friendly Fashion Design." *The Research Journal of the Costume Culture* 19(1): 119-127.

Park, Hye-Jung and Kim, Hae-Jung. 2004. "Cultural and Consumption Values in the Korean Fashion Industry: Integrating Macro-Level Perspectives of Fashion System in Marketing and Clothing Areas." *Journal of the Korean Society of Clothing and Textiles* 28(10): 1-11.

Park, Hwan-Ill. 2010. "An Inconvenient Truth: Revisited. Issue Paper." (27 August) Seoul. SERI (Samsung Economic Research Institute).

Shim, Woo-Bae. 2008. "Global Crisis and Land Management: Extreme Weather and Flood Management." *Planning and Policy* 323: 34-47.

Shin, On-Myung. 2011. "Study on Crisis Management of the Distribution Industry Regarding Climate Change: Application of Business Continuity Planning." *Journal of Distribution Management* 14(2): 85-105.

Shin Su Yun., & Hong, Jung Min. 2010. "The Sustainable Green Fashion Marketing Strategies According to Classification of Green Fashion Marketing of Domestic Fashion Companies." *The Research Journal of the Costume Culture* 18(5): 872-891.

The Dong-A Ilbo. "Weather Marketing Boon in the Apparel Industry 'Knowing the Weather Can Make Money'." (8 November 2001) http://news.donga.com/3/all/20011108/7757104/1 (accessed 19 June 2012).

The Dong-A Ilbo. "Warming Fashion, Apparel Industry Is Concerned." (12 December 2007). http://news.donga.com/3/all/20071212/8521749/1 (accessed 19 June 2012).

The Suwon Ilbo. "The Real Eco-Fashion in Era of Climate Change." (8 March 2012). http://www.suwon.com/news/articleView.html?idxno=72985 (accessed 18 June 2012).

REVIEW:

Policy responses by Japan and the European Union to the new security challenges in the 21st century

Emília Fábián[1]

Abstract

The 21st century has witnessed the development of new types of security challenges which require a revision of the traditional security policies that were based on military concerns. With the end of the Cold War, the geopolitical centers of power have undergone a transformation to respond to a different source of tension; while still having to maintain traditional territorial security they also have to eliminate the perceived threats over the human factors. This study focuses on this changing situation by comparing Japan and the European Union (EU) policies and their political practice and responses to the new urgent issues. The common security demands to these two powers, and their common interests as well as differences are noted and it is examined how these interests may strengthen or weaken their cooperation, respectively. The paper argues that Japan and the EU should cooperate in order to be able to deal effectively with non-traditional security issues.

Keywords: Energy security, Environmental security, European Union, Human security, Japan, Non-traditional security, Official Development Assistance

Introduction

Traditional security theories mainly focus on military and political issues. However, the concept of security changed with the end of the Cold War, and new security sectors have emerged and become important issues in regional cooperation. The geopolitical powers now should balance their traditional security concerns against non-traditional ones such as energy, resource depletion, climate change, forced migration, international crime, disease pandemics, health issues, green technology, and life sciences all of which carry challenging security implications. The principle of human security is closely associated with the notion of non-traditional security, because the unconventional security issues may threaten not only the individual rights of citizens but also the stability of the state.

The broadly defined concept of security includes the issues related to human security. In the 1994 Human Development Report, the United Nations Development Programme (UNDP) introduced a new understanding of human security, which interprets this notion as related to people rather than territories and with developmental issues rather than military power (UNDP Homepage, 1994). This change broadened the meaning of human security from the national scale towards a global scale. The said report dealt with such concerns from the perspective of sustainable human development, which is a new way of looking at developmental cooperation by global institutions.

Under such terms human security is about the security of people and their societies. It may be expressed as "freedom from fear" or "freedom from want". The school of freedom from fear seeks to protect individuals from threat of poverty, lack of state capacity and other inequities. The school of freedom from want argues that individuals should be protected from hunger, disease and natural disasters. Both concepts refer to the protection of individuals, as opposed to state or national security, hence the defense of borders.

The 1994 Human Development Report enlists seven core aspects of human security: economic security, food security, health security, environmental security, personal security, community security, and political security (UNDP Homepage, 1994, 24-25). Ban Ki-moon, the Secretary General of the United Nations made a speech on the UN Day in 2009 which displayed a broad understanding of how non-traditional security threats have challenged our world, as he

[1] Doctoral School of International Relations, Corvinus University of Budapest, Budapest, Hungary
e-mail: fabianemilia@gmail.com

mentioned the multiple crises in food, fuel, finance, flu, and climate change; he also referred to the fact that we all live as nations, as a species, on the same planet and we "may sink or swim together" (United Nations Homepage, 2009).

This research focuses on the examination of how the EU and Japan react to the new security risks of the 21st century. While borders have become easy to cross, countries have formed interrelations that significantly differ from the traditional way; new systems of dependence have been shaped under the new circumstances. Home and foreign policy have become interdependent. The concept of security has earned several interpretations in this complex world. The term was first used by the Realist School of the theory of international relations, and they saw the governments as the dominating character of international relations, and their interpretation of security was reflected by the three simple concepts of power, interest and war. According to the realist theory shaped by Morgenthau, scientific research should be carried out to observe the role of these three principles at the national level. However, the Idealist School did not ly took the governments as the exclusive participants in the international scene, but also considered organizations (social, civil or private, and NGOs), whether state-owned or not, as important factors. According to them, foreign policy can serve home policy only when it takes cooperation and interdependence into consideration. They emphasized on the importance of peace and the reduction of the number of conflicts by exercising aggressive power.

Bany Buzan, Ole Waever and Jaap de Wilde, reject the government-centered interpretation of the realists and view the concept of security in the light of a new sectoral approach. They examine the extended notion of security in the five main fields of military, political, economic, social and environmental areas (Buzan-Waever-de Wilde, 1988). The concept of securitization is related to the Copenhagen school of the theory of international relations, namely to Ole Waever, and means that any life threatening question or matter must be approached on a political level, and discussed publicly. Governments are responsible for the securitization of any specific, political, economic, social or environmental matter (Kiss, 2006). My research is predominantly concentrated on the fields of politics and the economy, to investigate the predicted changes in the attitude of the EU and Japan towards foreign policy in the 21st century.

Methodology

This study is based on an analytic review of the documents published by Japanese and EU institutions and governmental organizations. Since few literature has been published on the topic of Japan's security policy in the 21st century, I have mainly relied on the official documents issued by the Ministry of Foreign Affairs of Japan and by the Japan Science and Technology Agency, as well as on the publications made by Fukushima and Tow (2009), Clausen (2011), and Cardwell (2011). Many more experts have dealt with the topic in the EU, and one of the most well-known experts of the matter of human security, Mary Káldor, the daughter of the British economist Nicholas Káldor, has played an important role in shaping the Human Security Strategy of the EU (2008). The documents issued by the European Committee, as well as those of the European Parliament and the Council reveal the problems of risk and security in a more detailed way. This paper aims to analyze the accumulated empirical knowledge by comparing the policy responses of development assistance, peace-building activities, and the environment and energy security.

The present study investigates into the fields of strategic cooperation between Japan and the EU, on important topics such as climate protection, security policy, research and technology. We shall analyze how two views on security are reflected in the new policies of Japan and the European Union. We can understand the similarities and the differences of these concepts and the main priorities and methods of their diplomacy. The basic elements of their

security strategies will also become clear. We must not however ignore the criticism over the cooperation either, such as the ideas of Cardwell (2004), Berkofsky (2007) and Midford (2009).

This study examines the current security challenges which might be of serious consequence for the near future and shows how the new types of security threats can force an organization or a country to completely alter their policy. The governments are facing the reality that they would not be able to act effectively without creating adequate strategies to deal with the new types of threats. The first step would be for the governments to realize the existence of such non-traditional security risks. The occurrence of non-traditional security affairs has become one of the most important risks to national security. There is a wide range of threat factors the impact of which may be transnational and with a dramatic outbreak.

The emergence of non-traditional security issues can be partly attributed to the effects of fragmentation caused by globalization. Human security deserves special attention within the general theme of non-traditional security; therefore, I will first attempt to describe some of the policies applied by the two powers.

Findings

Japan

Human Security Policies: The Japanese foreign policy first incorporated human security issues in 1998. Prime Minister Obuchi Keizo illustrated his vision for responding to the issues of rapid economic development and globalization in the midst of the Asian financial crisis, and by associating it to human security he pushed the concept to the forefront of Japanese foreign policy (Obuchi, 1998). Prime Minister Yoshiro Mori later continued this trend in a joint project with the UN whereby the United Nations Trust Fund for Human Security (UNTFHS) was established in order to control the realization of human security projects (MOFA, 2002). UNTFHS programs focus on the least developed countries, especially the ones that show the lowest level of progress. These projects fill the gap between humanitarian and development assistance. Japan also helped to establish the Commission on Human Security (CHS) in 2001 (CHS Homepage). Doing so, the government assisted to the further development of the human security concept and made recommendations on the applicable techniques.

Japan has applied the human security approach as a part of her foreign policy and has emphasized on the "freedom from want" aspect of the concept. Striving to make the 21st century a "human-centered" one, Japan endorsed human security as the main principal of international cooperation. To achieve this goal, Japan follows three main activities: public promotion by means of policy speeches and symposia, inviting other countries to bilateral and multilateral meetings, and creating movements with that aim to mainstream human security (Okubo 2007: 12-13).

Official Development Assistance (ODA) is the official tool for implementing human security; it includes financial and technical aids, loans, and assistance for developing countries. ODA attempts to address the challenges coming from the international community and to advance the country's national interests. Japan's government-to-government cooperation is marked by joining the Colombo Plan in 1954, whose main goal was to facilitate economic and technical cooperation with developing countries. The main principle of this cooperation was to ensure stability and peaceful prosperity throughout the world, which is the main reason why Japan assists developing countries (50 Years of Japan's ODA, MOFA Homepage).

The basic philosophies of the ODA as defined in its charter include: (1) humanitarian issues, (2) an understanding that the international community is interdependent, (3) attention to the environment, and (4) supporting the self-help activities of recipient countries. Japan has provided ODA in the past fifty years so that these countries could make

progress in their economy. This particularly concerns Asian countries because of the ties they have in their history, geography and economy (MOFA Homepage, Japan's ODA Charter).

Despite the economic setback in the 1990s, Japan is still the fifth largest ODA donor in the world. The biggest amount of ODA, about 60%, was directed to Asian countries in order to develop their economic infrastructure and to improve the environment for investment. A large amount of aid has been provided for agriculture in these countries and consequently production has increased. Japan has spent an enormous amount of money on the training of engineers and other personnel too. As a result, the East Asian economy has shown a boost in growth. Japan's economic cooperation along with the grant aids that were provided to help develop the social infrastructure (education, public health, as well as sanitation) have created a multiplying effect to enhance the living conditions of local communities and reduce the regional disparity between cities and rural areas (MOFA Homepage, History of ODA, 1994).

Non-Traditional Security Issues and Relevant Policies: In 1980, the Japanese government adopted a "comprehensive national security" as its security doctrine. The concept of comprehensive national security (*shogo anzen hosho*) implied the prioritization of non-military over traditional military threats, cooperation with other administrative authorities and organizations in the field of economy, industry, export, foreign assistance, etc. So, for the first time, the country stepped outside the US military-centric thinking. Three concepts of self-defense, non-military diplomacy and natural disaster response merged under this policy. From today's perspective, the most interesting aspect of comprehensive security was the inclusion of natural disasters as a major threat (MOFA 1981).

After the recent earthquake and tsunami, Japan has adjusted its security policy paying more attention to non-traditional security threats like natural disasters. In the Diplomatic Bluebook of 2010, an annual report published by the Japan's Ministry of Foreign Affairs about foreign policy and activities, it is said that the international community has entered a new era of cooperation. The security policy of Japan now considers climate change, natural disasters, environment, the proliferation of weapons of mass destruction, international terrorism, and energy security as non-traditional security threats (MOFA 2010).

Climate Change and Environment: Climate change is a significant issue that needs long-term and global efforts. Japan has supported the developing countries on the climate change through its Cool Earth Partnership since 2008, and announced the "Hatoyama Initiative" at the UN Summit on Climate Change in 2009. According to this initiative, Japan would contribute more actively and is willing to support the countermeasures of climatic change in the developing countries both financially and technically (MOFA 2010).

In 2009, in Copenhagen, Denmark, at the fifteenth session of the Conference of Parties to the United Nations Framework Convention on Climate Change (COP15) Japan promised to take active measures under the "Hatoyama Initiative" to reduce greenhouse gas emissions and to provide aid to the countries vulnerable to the negative effects of climate change; these include various impacts on the living environment, such as droughts, floods and extreme weather, as well as rising sea levels. Japan conducts various projects in Africa and Asia, and provides technical assistance to China, Vietnam, Fiji, Mexico and other countries, so as to promote the 3Rs (Reduce, Reuse, Recycle) among local residents, companies and organizations (UN 2009).

Energy and Environmental Security: Energy security has traditionally been viewed in Japan as an indispensable component of the development strategies. Compared to the EU, Japan has emerged from the financial crisis relatively unharmed. Therefore, Japan is still able to show some economic growth. Facing supply instability and the volatility of prices along with an ever-growing global demand, the country has put a great emphasis on energy security. Nevertheless, energy security does not mean access to fuel sources at an affordable price; there are societal, economic

and environmental consequences to our reliance on fossil fuels. However, fossil fuels will continue to make up the bulk of energy mix in the near future. Japan has to find a way for the reconciliation of socio-economic development with environmental protection. Measures need to be taken to control energy efficiency on the one hand, while viable alternative energy sources must be explored on the other hand. Japan has always shown a great interest in clean energy technologies which may reduce carbon emissions and the dependence on fossil fuels as well.

According to the Institute of Energy Economics, Japan (IEEJ), about 30% of Japan's energy supply has been generated from nuclear energy. The country has always strived for energy diversification and energy security through less dependence on oil imports from the Middle East (IEEJ 2011). The earthquake of March 11th 2011 and the tsunami that followed severely damaged the nuclear power plants in Fukushima. The three disasters of earthquake, tsunami and nuclear fallout are now considered as Japan's worst crisis since the World War II. These disasters have challenged Japan's disaster management capacity and her long record of high standards in safety, and have also uncovered the disadvantages of nuclear energy as the basis of economic development. The countries of the region will have to consider how to deal with the latent threat of nuclear power and the importance of safety requirements. The advance of nuclear science and technology will have to focus on reliability.

Energy security often has close linkages to environmental security. The scarcity of clean water and food affects public health and sanitation. The effects of the present nuclear disaster have generated other problems besides energy and environmental security; there is a heavy impact on food, health, social and personal security, and on almost all aspects of human security, which the Japanese government has to deal with at one time.

Resource Security: Japan depends heavily on imports of energy, minerals, food and other resources and thus, the strengthening of economic security is one of Japan's fundamental diplomatic objectives. There is a transition in the paradigm regarding the allocation of resources which is associated with several factors including the growth of emergent nations and the impacts of climate change. Under such circumstances, the Japanese private sector and government need to work together to secure the needed resources for the long-term stability of supply to Japan. In order to promote an international partnership for responsible resource development and utilization, Japan is following activities such as participating in organizations like the International Energy Agency (IEA) and the International Renewable Energy Agency (IRENA).

In dealing with environmental issues, global economic and financial crisis and energy sustenance, the international community is looking forward to Japanese science and technology with great expectation. Recognizing the need for international cooperation, Japan has continued to promote science, technology and space diplomacy to pursue synergistic progress among these branches of research as declared in its general diplomatic policy (MOFA 2009).

European Union (EU)

Human Security Policies: The policy of human security has received a lot of attention within the European Union in recent years. Since the launch and development of the European Security and Defense Policy (ESDP), now to be incorporated in the Common Security and Defense Policy (CSDP), the EU has demonstrated its capacity to act as a global power in security affairs.

In 2003, the European Council approved the European Security Strategy (ESS), which marks the main points of human security. In this document the EU clarified its security strategy, and described the overall vision of the Union's foreign policy priorities, security posture and the integration objectives:

> "Security is a precondition of development. Conflict not only destroys infrastructure, including social infrastructure, it also encourages criminality, deters investment and makes normal economic activity impossible. A number of countries and regions are caught in a cycle of conflict, insecurity and poverty. Competition for natural resources - notably water- which will be aggravated by global warming over the next decades, is likely to create further turbulence and migratory movements in various regions." (Council of the European Union 2003, 2-3).

The Strategy names five "key threats" or new dangers, including terrorism, the proliferation of weapons of mass destruction, conflicts over regional issues, failed states, and organized crime, all of which destroy human lives and threaten human rights (Council of the European Union 2003, 3-5).

Outlining the EU Human Security concept, a Study Group chaired by Mary Káldor was convened in 2004 to look into the potential for generating a human security policy within the EU (Káldor, Martin, Selchow, 2007). Mary Káldor argues that the European foreign and security policy terms such as crisis management, conflict prevention, and cooperation of civil and military forces do not reveal the nature of European foreign policy; human security is a term that encompasses all the previous three concepts but takes them further towards "responsibility to protect", "effective multilateralism" and "human development". The report proposed a Human Security Doctrine for Europe, with three elements (Káldor, Martin, Selchow 2007: 2-3) which included an emphasis on human rights, demonstration of a clear political authority as well as a regional focus, multilateralism, reliance on legal instruments, and the appropriate use of force.

Human Security Approach: The human security approach of the EU is different from the Japanese concept; it is characterized by the "freedom from fear" principle. In the new global context, the EU security policy is made around human security rather than just state security. A human security approach means that contribution should be made to the protection of every individual, instead of an exclusive focus on the defense of the borders, or on the security of the member states.

The Human Security Doctrine lists three reasons for the adoption of a human security approach by the EU. The first argument is on "morality"; all humans have the "right to live in dignity and security". There are a few examples like Kosovo, East Timor, Sierra Leone and Yugoslavia where many activities were done by countries of the European Union. The second reason is a "legal" one. The United Nations Charter invites states to promote universal respect to human rights and the same principles are recognized in the Constitutional Treaty of the EU. The third reason can be defined as "enlightened self-interest". In practice this means the fact that the EU cannot be secure if others in its neighborhood are insecure (Council of the European Union, 2004: 4-5).

Realizing Human Security: The development policy aims to reduce poverty in developing countries by supporting reforms and by assisting development and trade. The EU currently provides over half of all Official Development Assistance (ODA) allocated by the major donor countries. In 2009, the total amount was EUR 49 billion, which equals to almost EUR 100 per citizen; in per capita terms it is higher than the sum of the participation of the US and Japan.

The key objective of EU is to create sustainable development in order to mitigate poverty. The aid aims to revive local economies by establishing the minimum conditions of basic physical and social infrastructure, and to strengthen the legal system and democratic governance. The ODA can be delivered in many ways such as cooperation with governments, implementing individual projects through NGOs, providing humanitarian aid, helping prevent from crises and support for a civil society (Delegation of the European Union to Japan Homepage, 2011).

Humanitarian aid: The EU and its member states form the world's largest donor of humanitarian aid, through the European Commission Humanitarian Aid Office (ECHO). The purpose is to provide emergency assistance and relief at the time of natural disasters or armed conflicts for people suffering from the distress, no matter what their race, religion or political convictions may be. Since its set-up in 1992, ECHO has been the channel of emergency relief of the EU in more than 100 countries and has provided the essential equipment and emergency supplies to disaster victims. From its annual budget of over EUR 700 million, ECHO provides medical and other expert teams, finances the needed transport, communication, food aid and logistic support, as well as technical assistance, public awareness, and support for humanitarian networks and training (ECHO Homepage, 2011).

The year 2010 was a demanding one for the EU humanitarian assistance, with numerous large-scale disasters both natural and man-made in Sudan, Pakistan, Haiti, Somalia, Middle East, Sri Lanka, Colombia and Kyrgyzstan. In 2011 the EU delivered a swift response to the crises that occurred in the world. Military conflicts as well as natural catastrophes have been responded to in Egypt, Libya, Tunisia, Ivory Coast and Yemen. The European Commission recently approved of a humanitarian funding of EUR 10 million to help the Japanese people with the consequences of the 11 March disaster (ECHO Homepage, Japan 2011).

Non-Traditional Security Issues and Relevant Policy: In 2008, the European Council approved the Report on the Implementation of the European Security Strategy, Providing Security in a Changing World (Council of the European Union, 2008). It did not replace the ESS of 2003 but supported it, and mentioned further key threats such as terrorism and cyber security, energy security and climate change.

In 2010, the Council of the European Union approved the EU Internal Security Strategy, which highlights the main challenges that the EU has to face, including terrorism, organized crime, cyber-crime, trafficking of drugs and arms, sexual exploitation of minors, child pornography, human trafficking, corruption and economic crimes and youth violence. The focus is on prevention (Council of the European Union, 2010). With the Treaty of Lisbon as the new legal structure, the Internal Security Strategy in Action will be the shared agenda of the EU until 2014. Its success depends on the combined efforts of all EU actors, as well as cooperation with the outside world. Of the recent and most accurate non-traditional security factors, the two most important ones are on energy security and climate change (Council of the European Union, 2010).

Energy Security: The EU market with half a million consumers is the largest in the world and the EU is the largest importer of energy. The scarcity of energy, the growing need for it in the emerging countries, the higher prices and climate change are just some of the risky security factors that the EU has to face.

The European Security Strategy of 2008 expressed a deep concern over the EU's energy dependence which has only increased over the last years. Europe is the largest importer of oil and gas in the world. Imports accounted for about 54% of energy consumption in 2006, and by 2030 up to 75% of oil and gas will have to be purchased from abroad. Most of the oil is imported from the OPEC (38%) and Russia (33%), while gas arrives mainly from Norway (26%), Russia (21%), Algeria (17%) and Nigeria (5%). The majority of the EU members feel defenseless against a limited circle of exporters because of their dependence on them. Several countries may face a stability threat since their ratio of import might exceed 80% (Council of the European Union 2008).

The EU needs a more unified energy market with more diversification of fuels, of sources and transit routes; therefore, the strengthening of bilateral cooperation in the energy field with countries like Brazil, Russia, Norway, Azerbaijan, Kazakhstan, Uzbekistan and Iraq is vital. There are various energy forums to bring the different interests closer to each other. The EU has regular meetings within the EU-Russia dialogue, EU-OPEC dialogue, Baku initiative,

Eastern Partnership and the Union for the Mediterranean. The problem of financial support and clashing interests within the EU makes it difficult to find a partner that is suitable from every aspect (Council of the European Union 2008).

Responding to the concerns expressed in ESS 2008, the European Commission proposed a wide-ranging energy package to provide more energy security in Europe. There are plans for a 20% reduction of greenhouse gas emissions, to increase the share of the renewable energy to 20%, and to save 20% of future energy demand in the EU by 2020.

In 2010 the Commission adopted the communication called "Energy 2020, a strategy for competitive, sustainable and secure energy". In it, the priorities for the next nine years are defined and measures are set to respond to the challenges of saving energy, securing supplies for a competitive market, and becoming a leader in technology (European Commission 2010).

The EU needs to save and produce more power, invest in low carbon alternatives, and build diverse networks. In order to achieve these aims, the EU needs to further develop and coordinate its internal market. Recently more legislation has been adopted and implemented, including the third Internal Energy Market Package, the directive for promotion of renewable energy, and the eco-design of products.

With its partners, including Japan, China, India and the US, the EU could promote low-carbon technologies, higher efficiency, and transparent and well-regulated global markets alongside renewable energy resources; all these countries have a common interest to come to a consensus concerning the most urging problems and to find a solution that is acceptable to all of them within the next few decades (European Commission 2010).

Climate Change: In 2003, the European Security Strategy identified the security implications of climate change. In 2008, the High Representative and Commission presented a Report on the Implementation of the ESS to the European Council in which climate change was described as a "threat multiplier" (Council of the European Union, 2008:5-6). Climate change may cause conflicts between countries over trade routes, maritime zones and food and water resources. The EU has enhanced its conflict prevention and crisis management, but needs to improve its ability to analyze data and issue early warnings. However, this cannot be done alone and international cooperation with the UN and regional organizations is essential.

Discussion

EU-Japan cooperation on security: There has been no coordinated mission between EU and Japan, though both parties are present in Afghanistan; and although they have a common goal to restore stability in this country, their responsibilities and tasks are very different. Their final aim is to ensure security in their surrounding areas and thus to decrease the level of global threats. Within the framework of the 19th Japan-EU Summit in 2010, the EU and Japan decided to tighten their interoperability in Afghanistan. This means that following an on-the-ground cooperation with the Provincial Reconstruction Teams, they would also cooperate on security, reintegration and development assistance, according to the EU's Action Plan and Japan's assistance package to Afghanistan and Pakistan (Council of the European Union, 2010).

The EU and Japan have both expressed their will to organize joint counter-piracy efforts in order to maintain the navigation safety along the Somalia coast and the Gulf of Aden. In order to stabilize the region, there have been interactions between the units of the Japan Maritime Self-Defense Force and EU NAVFOR Somalia Operation ATALANTA, and they decided to support the planned Djibouti regional training centre as well as other information-sharing centers in Yemen, Kenya and Tanzania.

Japan and the EU decided to cooperate in a more action-oriented way regarding the issues of promoting peace and security, Japan's assistance to the EU security and defense policy, and partnership in Afghanistan and Pakistan, as well as research and innovation. Both parties are committed to seeking for a world without nuclear weapons, along the goals of the Treaty on the Non-Proliferation of Nuclear Weapons (NPT). Furthermore, they have expressed serious concern over Iran's nuclear program.

Japan shows a high regard for the EU's crisis management and post-conflict peace-building activities under the CSDP and for the first time the government expressed an interest in providing civilian personnel to CSDP missions, and the EU welcomed it. The parties agreed to also cooperate on security and development assistance in Afghanistan and Pakistan (Council of the European Union, 19th Japan-EU Summit 2010: 5).

EU-Japan cooperation on climate change: At the G8 summit in July 2008 held in Japan, an EU-Japan joint statement demonstrated a binding international approach to deal with the climate change problem (Council of the European Union: 17th Japan-EU Summit, 2008). Japan wanted the summit to continue negotiations for a post-Kyoto Protocol deal to curb global warming by the end of 2009. But the joint statement did not provide a specific figure for the cuts. While the EU has proposed emission reductions of 20% to 30% by 2020 from the 1990 level, Japan has followed the United States statement that it is too early to set numbers for future emission curbs. On the following G8 summit in Prague in 2009, again a promising statement was made by both parties. They decided to join forces in the battle against climate change to "build a low-carbon society" and invited a large number of countries to follow (Council of the European Union: 18th Japan-EU Summit, 2009).

The United Nations Climate Change Conference in 2009 in Copenhagen (COP15) did not lead to a legally binding agreement to succeed the Kyoto Protocol. The parties only agreed to proceed with the Copenhagen Accord, which included a number of positive elements but fell short of expectations (United Nations, 2009). In December 2010, COP16 took place in Cancun, Mexico, but as expected no binding agreement was signed (Nguyen, 2010). The Kyoto Protocol expires in 2012, which makes it increasingly urgent that developed nations agree to a new agreement. The announcement that Japan is not going to be involved is increasingly worrisome, especially for the fact that Japan was the host nation for the climate change talks in 1997when the Protocol was first generated (Kyoto Protocol, 2011).

EU-Japan Strategic Partnership: Javier Solana, the EU High Representative for the CFSP until 2009, delivered a speech in 2006 about the EU's strategic partnership with Japan. One of the top priorities within this partnership is to promote common values such as democracy, human rights and good governance. Both parties have a similar view about security questions and prefer a multilateral forum for carrying on the discussions. East Asia is central to the interest of the EU, and as the new center of the world trade, it has attracted great investments especially by Japan and China. While accepting Japan's concerns about China's rising economy and growing military budget, the EU considers China as one of the key partners. Although the basic questions of security that the EU and Japan face are almost the same, there are big differences in the approaches and policies they implement (Council of the European Union, Solana, 2009).

The 19th EU-Japan Summit was held in Tokyo in April 2010. The Prime Minister of Japan, the President of the European Council and the European Commission were committed to strengthening bilateral relations, exchanged views on a number of international key questions and confirmed the common positions of Japan and the EU over many of the regional and global challenges. Furthermore, the parties agreed to make their relationship closer in the future in a number of areas. To strengthen the economic relations, a joint High-Level Group was established to determine the key issues of interest by both parties (Council of the European Union, 19th Japan-EU Summit 2010: 2).

EU-Japan Science and Technology Relations: Japan and the EU are going to increase their collaboration for the research and development of innovative technologies. They decided on cooperation in science and technology in 1993 to create a high-level forum in order to exchange views and promote joint research in many areas. In 2009 Japan and the European Community signed an agreement on Science & Technology Cooperation, which identified common research priorities and areas of common interest, such as energy and environment, green and low carbon technologies, space applications and thermonuclear fusion (Delegation of the European Union to Japan, MOFA Homepage).

The EU regards Japan as an important partner to cooperate within these fields and aims to strengthen their relations. Knowledge is the basis of the EU's Lisbon Strategy for turning into the "most dynamic competitive knowledge-based economy in the world" (European Union Homepage, A Constitution for Europe). The "knowledge triangle" of research, education and innovation, is a fundamental factor in order to achieve competitiveness. Various programs, initiatives and support measures are carried out at the EU level to promote knowledge.

The currently valid EU 7th Framework Programme for Research and Technological Development (FP7) has been set for seven years (2007-2013). The program has a total budget of over EUR 50 billion which represents a 63% increase, compared to the previous Framework Programme FP6. FP7 provides funding for exchange of fellows between the parties and facilitates cooperative research projects. These mechanisms enable Japanese companies, universities and individual scientists to work closer with their European counterparts. There are several areas for collaborative research including health, food, agriculture and biotechnology, information and communication technologies (ICT), nanoscience and nanotechnology, energy, the environment, transport, and others (European Commission Homepage, Seventh Framework Programme, 2011).

According to the exchange agreement of 2008, the Japan Science and Technology Agency (JST) can participate under the "Cooperation" category of FP7. JST has offered a new plan for the funding of cooperative research exchange projects with the EU. The "environment" has been selected as the field of research to which the funding goes. Among the member states of the EU, the UK, Sweden, Spain, Denmark, Germany, Finland and France participate in JST projects (Japan Science and Technology Agency Homepage, 2011).

Criticism of the EU-Japan Relations: There are thousands of pages emphasizing the good relations of the two powers, and we can only find just few experts who have given a substantial and reliable criticism of the cooperation between the EU and Japan.

Paul James Cardwell has doubts over the EU-Japan relationship on whether it may be characterized as a "meaningful partnership" or rather a form of "mutual ignorance" (Cardwell 2004: 11-16). The EU and Japan have strengthened their relationship ever since they signed a Joint Declaration in 1991, which was the first document to govern their political and economic relationship. Both of them are economic powers, regardless of their present budget and balance problems and the impediments that stand against them on the world stage to diminish their political power. But there is a lack of political will to do more in the areas of international politics and security. In spite of the signatures on protocols and declarations, few joint policies have been implemented.

Axel Berkofsky says that little has been achieved in the field of security either (Berkofsky 2007: 19-24). The EU and Japan have created a framework for regular consultations over the issues of interest. The EU and Japan together support international efforts for global nuclear disarmament and stopping the proliferation of weapons of mass destruction. Still, there remains the question of security. Soft security[2] is the area where Japan and the EU could

[2] Soft security is the opposite of hard security. According to Aleksandar Fatić soft security means responding to mainly internal or trans-border threats, not inter-state ones, without the use of military force, but rather through the efficient management of society from within with strong conflict-prevention measures. The response to security threats would not be geographic but policy-oriented.

actually make a difference and achieve success (Fatić, Aleksandar 2002: 93-98). Soft security can also be named alternative security, which refers to issues such as providing development aid, technical assistance, and economic and financial grants. The development of specific European-Japanese initiatives focus exclusively on that area of security.

Paul Midford argues that the EU and Japan can work together and show their allies in the US and other countries that the human security approach for promoting stability could be more expedient rather than the approach focusing on military interventions (Midford 2009: 11). The EU can play the role of a partner in redefining the ambivalent question whether Japan is able to participate with SDF in the field of overseas humanitarian and reconstruction missions. According to Midford, Japan and the EU should cooperate and help to stabilize countries such as Afghanistan, Somalia and Sudan. The only problem is that Japanese SDF has to be separated from the combat areas. Four possible solutions were raised by Midford, out of which the most ambitious was that SDF units should be dispatched to safer areas to implement ODA projects and participate in reconstruction together with EU forces.

Conclusion

Japan is the EU's most important partner in Asia, whilst for Japan the EU is a center of stability and growth in a turbulent economic world. Both parties have become the leading economic powers during the last four decades. Their relation is significant since they are two of the greatest economies of the world. They both belong to the club of developed economies, though they have faced enduring and heavy crises during the last years. The EU and Japan together have a population of 627 million, which may be less than 10% of the world population but makes more than 40% of the world GDP (Eurostat, 2011). This however, increases their responsibilities in the promotion and maintenance of stability and security at the regional and global level.

Their overall relationship follows the three axes of political dialogue, economic cooperation, and partnership in common and global challenges. Japan's New Growth Strategy published in 2009 has clarified the directions for three strategic areas, as well as the principal measures and the 2020 targets; they include the implementation of reform arrangements in growth areas that may rely on Japan's strengths (environment, energy, health) and the needed framework for supporting growth (science and technology, human resources and employment) (National Policy Unit, 2009). Green innovation and life science innovations are the fields where Japan and the EU could possibly have a significant advantage based on the past as well as the presently ongoing scientific research. Innovation in the environment and energy sector and similarly in the medical and health sectors can engage Japan and the EU by fostering to develop new technologies that may provide fuel for the growth of their economies to the level of the most advantaged powers in the world.

The EU has a limited amount of natural resources compared to its territory. This is a weakness which together with the abolishment of the bipolar system of power at the end of the Cold War and the following unpredictability of the political regimes, have made the EU think of the question of the diversification of the import routes. The expansion of EU membership and the adoption of the Treaty of Lisbon have increased the importance of the EU-Japan dialogue and presented opportunities for the building of a stronger relationship. Both of them depend heavily on imports of energy and mineral resources, and their future development depends on the successful renewal of relations. Such common interests cause the EU and Japan to be natural allies in their effort to develop a stable system of multilateral political and economic relations. It is very important for the two to cooperate so as to achieve this goal. The political and economic interdependence of Japan and the EU puts them in a position that may help with a mutually beneficial development. Therefore, Japan and the EU may be considered as two strategic global partners.

References

Akaha, Tsuneo. 2003. "Non-traditional Security Cooperation for Regionalism in Northeast Asia", Waseda University. http://dspace.wul.waseda.ac.jp/dspace/bitstream/2065/791/1/20040116_akaha_eng.pdf (accessed 12 February 2011).

Ban Ki-moon. 2009. "Secretary General's Message for UN Day 2009", United Nations Day. 24 October 2009. United Nations. http://www.un.org/en/events/unday/2009/sgmessage. shtml (accessed 12 February 2011).

Belkin, Paul. 2008. "The European Union's Energy Security Challenges". *Federation of American Scientists*, http://www.fas.org/sgp/crs/row/RL33636.pdf (accessed 6 April 2011).

Berkofsky, Axel. 2007. "The EU and Japan: a partnership in the making". EPC Issue Paper No 52: 19-24.

Buzan, B., Waever, O., de Wilde, J. 1998. *Security: A New Framework for Analysis.* London

Cardwell, P.J. "The EU-Japan Relationship: From Mutual Ignorance to a Meaningful Partnership?" (2004) 2 (2) Journal of European Affairs 11-16.

Clausen, Daniel. 2009. "Japan and Human Security, A Powerful Discourse or a Useful Coping Mechanism?" *Electronic Journal of Contemporary Japanese Studies* (accessed 30 January 2011).

Commission on Human Security (CHS). Establishment of the Commission. http://ochaonline.un.org/humansecurity/CHS/about/Establishment.html (accessed 21 February 2011).

Council of the European Union. "A Human Security Doctrine for Europe, The Barcelona Report of the Study Group on Europe's Security Capabilities", 2004. http://www.consilium.europa.eu/uedocs/cms_data/docs/pressdata/solana/040915CapBar.pdf (accessed 1 March 2011).

Council of the European Union. "A Secure Europe in a Better World, European Security Strategy, 12 December 2003" http://www.consilium.europa.eu/uedocs/ cmsUpload/78367.pdf (accessed 21 February 2011).

Council of the European Union. Solana, Javier. 2006: "The EU's strategic partnership with Japan". http://www.consilium.europa.eu/ueDocs/cms_Data/docs/pressData/en/discours/ 89298.pdf (accessed 2 February 2011).

Council of the European Union. "17th Japan-EU Summit, 23 April 2008", http://eeas.europa.eu/japan/docs/joint_statement_statement_0408_en.pdf, (accessed 16 March 2011).

Council of the European Union. "18th EU-Japan Summit, 4 May 2009", http://eeas.europa.eu/japan/docs/2009_summit_js _en.pdf (accessed 16 March 2011).

Council of the European Union. "19th EU-Japan Summit, Tokyo, 28 April 2010", http://www.consilium.europa.eu/uedocs/cms_Data/docs/pressdata/en/er/114063.pdf (accessed 5 March 2011).

Council of the European Union. "Report on the Implementation of the European Security Strategy-Providing Security in a Changing World, 2008" http://www.consilium.europa.eu/ueDocs/cms_Data/docs/pressdata/EN/reports/104630.pdf (accessed 10 March 2011).

Council of the European Union. "Internal Security Strategy". 2010. http://register.consilium.europa.eu/pdf/en/10/st07/st07120.en10.pdf (accessed 1 March 2011).

Daví, Marco. 2009: "Human Security as the One Size Fits All Policy Approach?" European Security and Defence Forum Workshop 2. http://www.chathamhouse.org.uk/files/16718_1109esdf_davi.pdf (accessed 15 March 2011).

Delegation of the European Union to Japan. "ODA", http://www.euinjapan.jp/en/world/human/oda/ (accessed 1 March 2011).

Delegation of the European Union to Japan. "Chronology of EU-Japan Relations", http://www.euinjapan.jp/en/relation/chronology/ (accessed 1 March 2011).

Europa, Gateway to the European Union. "Petersberg tasks", http://europa.eu/legislation_summaries/glossary/petersberg_tasks_en.htm (accessed 3 March 2011).

Europa, Gateway to the European Union. "A Constitution for Europe", http://europa.eu/scadplus/constitution/index_en.htm (accessed 3 March 2011).

Europa, Gateway to the European Union. "EU Energy Security and Solidarity Action Plan: 2nd Strategic Energy Review", http://europa.eu/rapid/pressReleasesAction.do?reference =MEMO/08/703&type=HTML (accessed 15 March 2011).

European Commission. "Humanitarian Aid and Civil Protection", http://ec.europa.eu/echo/index_en.htm (accessed 1 March 2011).

European Commission. "The EU Internal Security Strategy in Action: Five steps towards a more secure Europe", http://ec.europa.eu/commission_2010-2014/malmstrom/archive/internal_security_strategy_in_action_en.pdf (accessed 15 March 2011).

European Commission. "Energy 2020 - A strategy for competitive, sustainable and secure energy", 2010. http://ec.europa.eu/energy/strategies/2010/2020_en.htm, (accessed 15 March 2011).

European Commission. "Energy directives", http://ec.europa.eu/energy/infringements/index_en.htm (accessed 16 March 2011).

European Commission. "Seventh Framework Programme", http://europa.eu/legislation_summaries/energy/ european_energy_policy/i23022_en.htm (accessed 2 February 2011).

European Commission. "Second Strategic Energy Review", http://ec.europa.eu/energy/strategies/2008/2008_11_ser2_en.htm (accessed 6 April 2011).

European Council. "External Dimension of European Union Energy Policy", 4 February 2010.http://www.european-council.europa.eu/media/171260/ec04.02.2011-external-dimension-factsheetfinal.en.pdf (accessed 6 April 2011).

European Council. "EU Energy Policy", http://www.european-council.europa.eu/media/171257/ec04.02.2011-factsheet-energy-pol_finaldg.en.pdf (accessed 6 April 2011).

European Union External Action. "EU Common Security and Defence Policy", http://www.consilium.europa.eu/showPage.aspx?id=268&lang=en (accessed 5 March 2011).

Eurostat. "GDP at current prices (EUR) in 2007", http://appsso.eurostat.ec.europa.eu/nui/setupModifyTableLayout.do (accessed 5 March 2011).

Fukushima, Akiko, Tow, William T. 2009. "Human security and global governance". *Security Politics in the Asia-Pacific, A Regional-Global Nexus?* (edited by William T. Tow). Cambridge: Cambridge University Press, 167-168.

Institute of Energy Economics, Japan. 2011. "Japan Energy Brief". No. 14. July 2011. http://eneken.ieej.or.jp/en/jeb/1107.pdf (accessed 5 August 2011).

Japanese Ministry of Foreign Affairs. "Diplomatic Bluebook 1981" http://www.mofa.go.jp/policy/other/bluebook/1981/1981-contents.htm#CONTENTS (accessed 20 January 2011).

Japanese Ministry of Foreign Affairs. "Diplomatic Bluebook 2009" http://www.mofa.go.jp/policy/other/bluebook/2009/html/index.html (accessed 20 January 2011).

Japanese Ministry of Foreign Affairs. "Diplomatic Bluebook 2010" http://www.mofa.go.jp/policy/other/bluebook/2010/html/index.html (accessed 22 January 2011).

Japanese Ministry of Foreign Affairs. "History of Official Development Assistance". 1994. http://www.mofa.go.jp/policy/oda/summary/1994/1.html (accessed 22 January 2011).

Japanese Ministry of Foreign Affairs. "Human Security" http://www.mofa.go.jp/policy/human_secu/index.html (accessed 5 January 2011).

Japanese Ministry of Foreign Affairs. "Japan's Effort on Peacebuilding". March 2007. http://www.mofa.go.jp/policy/un/pko/effort0704.pdf (accessed 5 February 2011).

Japanese Ministry of Foreign Affairs. "Japan's ODA Charter." http://www.mofa.go.jp/policy/oda/reform/revision0308.pdf (accessed 5 February 2011).

Japanese Ministry of Foreign Affairs. "Japan's ODA White Paper 2002." http://www.mofa.go.jp/policy/oda/white/2002/part1_2_4.html (accessed 5 February 2011).

Japanese Ministry of Foreign Affairs. "Japan's Official Development Assistance White Paper 2009". http://www.mofa.go.jp/policy/oda/white/index.html (accessed 5 February 2011).

Japanese Ministry of Foreign Affairs. "Signing of the Agreement between the Government of Japan and The European Community on Cooperation in Science and Technology". 30 November 2009. http://www.mofa.go.jp/announce/announce/2009/11/ 1197610_1146.html (accessed 6 February 2011).

Japanese Ministry of Foreign Affairs. "Statement by Foreign Minister Keizo Obuchi on Japan and East Asia: Outlook for the New Millennium" http://www.mofa.go.jp/announce/announce/1998/5/980504.html (accessed 4 January 2011).

Japanese Ministry of Foreign Affairs. "Support for developing countries under the "Hatoyama Initiative". March 2010. http://www.mofa.go.jp/policy/environment/pdfs/jp_initiative_pamph.pdf (accessed 5 February 2011).

Japanese Ministry of Foreign Affairs. 50 Years of Japan's ODA. 1954-1976 System Development Period. http://www.mofa.go.jp/policy/oda/cooperation/anniv50 /pamphlet/progress1.html (accessed 4 January 2011)

Japan Science and Technology Agency. "Strategic International Cooperative Program", http://www.jst.go.jp/inter/english/project/country/eu.html, (accessed 5 February 2011).

Kaldor, Mary, Martin, Mary, Selchow, Sabine. 2008. "Human Security: A European Strategic Narrative". *Friedrich Ebert Stiftung* http://library.fes.de/pdf-files/id/ipa/05172.pdf (accessed 25 February 2011).

Kiss, J. László. 2006. A nemzetközi biztonság új napirendjei, avagy a biztonság metamorfózisa. *Külügyi Szemle*, V. (2-3).

Koumura, Masahiko. 2008. "Japan: A Builder of Peace". Speech by Minister for Foreign Affairs of Japan. Japanese Ministry of Foreign Affairs. http://www.mofa.go.jp/policy/un/pko/speech0801.html (accessed 25 February 2011).

Kyoto Protocol. 2011. *The New York Times*. (12 December) http://topics.nytimes.com/topics/ reference/timestopics/subjects/k/kyoto_protocol/index.html (accessed 15 December 2011).

Midford, Paul. 2009. "The Nexus of Development and Security Cooperation: Possibilities for EU-Japan Cooperation". *Keio Jean Monnet Centre for EU Studies*, http://www.jean-monnet-coe.keio.ac.jp/references/paul_midford_01.pdf (accessed 5 February 2011).

National Policy Unit. "The New Growth Strategy (Basic Policies), Toward a Radiant Japan, December 30, 2009" (accessed 5 March 2011).

Nguyen, Vi. 2010. "Cancun: your five-minute guide to the COP16 climate change conference". *Ecologist* (25 November 2010). http://www.theecologist.org/News/news_analysis/686993/cancun_your_fiveminute_ guide_ to_the_cop16_climate_change_conference.html (accessed 5 March 2011).

Obuchi, Keizo. 1998. “Statement on Japan and East Asia: Outlook for the New Millennium”. *Japanese Ministry of Foreign Affairs.* http://www.mofa.go.jp/ announce/announce/1998/5/980504.html (accessed 4 January 2011).

Ogata, Sadako, Sen, Amartya. 2003. “Human Security Now”, *Commission on Human Security*, http://reliefweb.int/sites/reliefweb.int/files/resources/91BAEEDBA50C6907C1256D19006A9353-chs-security-may03.pdf (accessed 4 January 2011).

Okubo, Shiro. 2007. “Freedom from Fear and Want” and “the Right to Live in Peace”, and “Human Security”. Ritsumeikan International Affairs. Vol. 5, 1-15. http://www.ritsumei.ac.jp/acd/re/k-rsc/ras/04_publications/ ria _en/5-01.pdf (accessed 31 January 2011).

United Nations. “Copenhagen Climate Change Conference- December 2009”. http://unfccc.int/meetings/copenhagen_ dec_2009/ meeting/6295.php (accessed 14 February 2011).

United Nations Development Programme. “New Dimensions of Human Security, 1994”. http://hdr.undp.org/en/ media/hdr_1994_en_contents.pdf (accessed 4 January 2011).

REVIEW:

An international comparative study on the regulation policy of asbestos usage in China

Xuepeng Qian [1], Weisheng Zhou[2] and Kenichi Nakagami[2]

Abstract

Due to its outstanding physicochemical properties, asbestos is widely used in construction and thermal insulation of buildings. The United States and Japan used to be the largest consumers of asbestos during their period of rapid economic growth. Although many countries have banned the use of asbestos because of its health risks to humans including mesothelioma, China continues to produce and use large amounts of asbestos because of its low price, high performance, and abundance of asbestos mines and related industries in China. We studied the current issues associated with asbestos use in China including resources, usage, regulations and substitutes. In most countries it took a long time to ban asbestos use. In an international comparison, we refer to the experience of the United States and Japan to predict the upcoming problems related to asbestos in China and reach some conclusion on how to persuade the Chinese government to reconsider its policy stance on asbestos.

Keywords: Asbestos, China, Comparative policy study, Environmental health, Environmental policy, Mesothelioma

Introduction

The international society has taken an increasingly stiffened the regulations on asbestos use. The International Ban Asbestos Secretariat (IBAS) has listed 54 countries that have banned the use of Asbestos. Most developed countries have already completed or are moving towards a complete prohibition of asbestos use. In Japan, the use of asbestos has been banned since an asbestos pollution incident happened in Kubota Amagasaki factory, also known as the Kubota Shock. In Japan, it was predicted that there would be at least 100,000 mesothelioma patients in 40 years since 1970s when the asbestos use reached 300,000 metric tons (t) per year.

In the United States (US), about 8,500 to 19,000 people have suffered annually from asbestos pollution since the annual asbestos use reached 700,000 t in 1960s. The US has since sharply reduced the annual net domestic use of asbestos to 1,100 t. Severe damages and social problems may happen in China in the same way.

Since the risk of damage associated with the use of asbestos was first discovered in the 1920s in Britain, a lot of research has been done on asbestos regarding both its medical effects and applications in the construction industry. The International Agency for Research on Cancer (IARC) affiliated with the World Health Organization (WHO) classifies asbestos as a “known human carcinogen”, as does the US Environmental Protection Agency (EPA).

In Japan, Murayama investigated the risk of spreading exposure to asbestos in environment and argued that asbestos damage is in the form of an “environmental pollution” rather than just an "occupational disease" (Murayama 2002: 328).

However, due to its outstanding physicochemical properties and low price, serpentine asbestos is still widely used in construction and thermal insulation materials and for other uses in China (Zhou 2008: 109-126). The use of asbestos in China has kept increasing in recent years and reached over 600,000 t per year, which is currently the largest asbestos consumption in the world. China is one of the few countries with lots of asbestos mineral resources and related industries, and has taken up a positive policy on asbestos use.

[1] College of Asia Pacific Studies, Ritsumeikan Asia Pacific University, Beppu City, Japan e-mail: qianxp@apu.ac.jp
[2] College of Policy Science, Ritsumeikan University, Kyoto City, Japan

Methodology

This study is an analytical review based on the information collected and analyzed from literature, official data released by governmental agencies and also data collected through field works and a survey in Xi'an by one of us. Currently, there are two opposing views on the asbestos usage policy: one is that asbestos can cause serious public health problems and should be banned immediately, such as by the European Union (EU), US and Japan; the other is that serpentine asbestos can be "safely" used and successfully applied to wide industrial areas for its high performance, such as in China. Our study attempts to discuss the asbestos problems from a different viewpoint. We argue that China has focused on the "current" situation and conditions of asbestos usage, while similar problems that the EU, US and Japan experienced could probably happen in China in the "future"; this is because a similar process is being repeated in all these countries. By going through the history of asbestos usage from the peak consumption period to its prohibition and ban in those countries, we can estimate the future situation of asbestos usage in China and make some suggestions for the associated problems.

We first summarize the situation of asbestos usage in an international comparison and then analyze the role of asbestos at the current stage of economic growth and development in China with the possibility of its ban in the near future. Moreover, we compare the experience of the US and Japan to predict the potential of upcoming problems related to asbestos use in China. This discussion we allow us to provide several suggestions that may stimulate the Chinese government to reconsider its current policy over the use of asbestos.

Findings

Asbestos Production and Consumption in China

About 50 asbestos mines had been explored in China until 2000, holding 93,025,000 t of serpentine asbestos, and making it the 3rd largest in the world, based on the statistics of China Non-metallic Minerals Industry Association (CNMIA) in 2000 (CNMIA 2003). More than 90% of the asbestos resources are located in western areas such as 58,095,000 t in Qinghai, 15,585,000 t in Sichuan, 10,333,000 t in Shanxi and 5,135,000 t in Xinjiang. Mangya Town in Qinghai and Akesai Town in Gansu are the two largest production centers and produce more than half of the asbestos per year.

As the statistics of CNMIA show, China's annual asbestos production was 211,000 t in 1978, only 4% of the total production of the world at the time. China produced over 300,000 t per year, reaching 14.6% of the world production from 1998 to 2005, a period of rapid economic growth. In recent decades, the state-owned firms of asbestos mining and production have gone under reform and been privatized, which resulted in many issues for both employees and local citizens such as lower efficiency, a more dangerous operation and worse conditions.

Table 1 shows the top five producers and users in 2011, where the BRIC countries (Brazil, Russia, India and China) can be found. Presently, asbestos production in China is the 2nd largest one, and its consumption is the 1st largest in the world. As economy keeps growing rapidly, asbestos usage is increasing every year. Till 1992, the amount of domestic demands reached to about 240,000 t, and the annual average rate of increase was 4.5%. Furthermore, according to the statistics of CNMIA, the domestic asbestos demands reached 440,000 t in 2004.

The average annual asbestos usage in China is about 400,000 t, 25% of which is imported. Especially after China's WTO entry in 2001, the tariff of asbestos decreased from 12.0% to 6.8%. Larger amounts of high quality and cheap asbestos were imported compared with domestic production which decreased to 300,000 t in 2005. Moreover, due to the prohibition or decline of asbestos usage in the US and Japan and other large consuming countries, China has become the

target market of those asbestos-exporting countries such as Canada, where 90% of asbestos production used to be exported to Japan (Miyamoto etc 2006).

Table 1: The top five producers and users of asbestos in 2011

Top Five Producers (t)		Top Five Users (t)	
Russia	1,000,000	China	637,735
China	440,000	India	321,803
Brazil	302,300	Russia	251,427
Kazakhstan	223,100	Brazil	185,332
Canada	50,000	Kazakhstan	155,166

Source: IBAS 2012

More than 80% of the firms using asbestos in production are located in coastal cities. Regarding the categories of asbestos consumption, it is mainly used for asbestos cement products and friction material in vehicles brakes. As shown in Table 2, about 85% of the asbestos use is for asbestos cement products, where no less than 360,000 t are used every year. The asbestos cement industries have developed greatly since 1980s in the quantity and categories of products and the manufacturing techniques. About 560 asbestos cement firms exist now (CNMIA 2003). The 2nd largest usage of asbestos was for friction in automobiles and as a sealing material. The Chinese government proclaimed the new "automobile brake washer" national standard (GB5763-1998) in 1998, and forbid the use of asbestos in all brake systems since October 1, 2003. It is said to be the first asbestos use prohibition action in China (CNMIA 2006).

Table 2: The change in the types of asbestos usage in China

	1970-1979	1980-1989	1990-1999	2000-2008
Cement products	65-75	70-75	75-80	80-85
Friction products	15-20	15-20	13-18	10-13
Other products	15	10	7	5-7

Source: CNMIA 2003, Zhou 2008: 109-126

Asbestos is divided into two subgroups; chrysotile belongs to the serpentine family of minerals and demonstrates curly fibers while amphibole demonstrates needle-like straight fibers. The latter group includes actinolite, crocidolite, anthophyllite, tremolite, and amosite asbestos. Chrysotile is the only serpentine asbestos that may nowadays exist in almost any asbestos-based product; it is also the main type of asbestos being mined at present. Listed in the Rotterdam Convention as a hazardous industrial chemical, amphibole asbestos has been banned, even in most of the countries which still mine and use asbestos, ever since the Rotterdam Convention was enforced on 24 of February 2004. The prohibition of serpentine asbestos was submitted for a formal examination after the issue was raised by the EU and other countries; but finally serpentine asbestos was not put into the list because of the opposition of 5% of the members such as Canada, which has abundant mineral resources of serpentine asbestos.

Regulations for Asbestos Use in China

Since 2002, China has banned amphibole asbestos and published stringent step by step measures for the use of serpentine asbestos, as a member of the Rotterdam convention (shown in Table 3). But the total consumption keeps increasing. In September 2006, CNMIA organized a national meeting and declared its policy of safe asbestos usage. Safe use refers to the requirements for the thorough management of the production circumstances. CNMIA also

suggested that a wet type production should be followed for the safe use of asbestos. However, most of mining industries in China used a dry type process. Moreover, the asbestos produced in Mangya Town, one of the largest production centers, was not suitable for the wet type spinning production of asbestos due to its physical characteristics. Dry type production can result in the dispersion of asbestos particles, which may impair the workers' health, and also the health of people living nearby. The national standards have also specified detailed requirements for safe production such as 2 mg/m^3 for asbestos emission limitation; however the best case reported in Mangya Town was 10 mg/m^3. Small private firms even cared less about the asbestos pollution during production; the regulation and standards were rarely followed with strict supervision and clear penalties.

Table 3: Important events for asbestos use

Year	Event
2002	***Actinolite, tremolite, amosite anthophyllite asbestos*** were listed in the catalogue of outdated products as technologies and products to become phased out (3rd batch). (enacted by the State Economic and Trade Commission as Decree No. 32; enforced from 1st of July 2002)
2003	China banned asbestos for ***friction materials in the auto industry***: GB 12876-1999: road vehicle braking systems; structure, performance and testing methods.
2005	The import and export of amphibole asbestos, both ***amosite*** and ***crocidolite*** were prohibited.
2008	On December 6, the final decision of no consent to import ***actinolite, tremolite, amosite Anthophyllite asbestos*** was published by State Economic & Trade Commission (currently National Development and Reform Commission).
2010	In December 2010, in MSC.282(86) banning asbestos products for all ships was emphasized by China Classification Society, which belongs to the Ministry of Transport.
2011	From June 1, using any type of asbestos, including ***chrysotile***, as ***construction material in the siding and wall*** has been banned based on the Chinese national standard GB50574-2010.

Source: IBAS 2012, Rotterdam Convention 2012

Even though asbestos has been proved to be dangerous, the Chinese government takes a positive policy for asbestos use under safe use conditions. Besides the low cost and good performance, there are some other social and economic reasons to make asbestos prohibition difficult in China.

1) Economics: the amount of asbestos use is quite large now, and the related industries including mining, asbestos cement, friction and sealing materials and etc, account for a large part of the economy. Asbestos prohibition can affect a lot of industries and the local employment opportunities. Besides, 90% of asbestos mines are located in west areas, where minority nationalities live. Asbestos production industries contribute a lot to the local economics, such as Akesai Town, where asbestos mining and related industries provide for over 90% of the tax revenue and 80% of employment. Asbestos prohibition would strike such areas severely.

2) Substitutes: research on Substitutes for asbestos has been conducted for a long time without satisfying results. One of the introduced non-asbestos fibers costs 160 CN Yuan/kg, 40 times that of asbestos fiber, which is just 4 CN Yuan/kg (Rong 2006: 132). The cost of imported artificial fibers is 15 times higher than that of serpentine asbestos, which is 2,000 CN Yuan/ton. If the asbestos friction material was to be replaced by imported artificial fibers, then the cost of one set would increase by 10 CN Yuan; with 20,000,000 sets produced and 30,000,000 sets for repair each year, the annual total cost would increase by 500,000,000 CN Yuan. A survey showed that the asbestos products accounted

for 48.5% of the friction material industry and 88.3% of the sealing material industry, and that the amount of production has kept increasing.

The substitutes for asbestos in China are divided into 2 kinds: natural fiber and artificial fiber. The former one includes sepiolite and brucite, the performance and the production of which are not as good as that of asbestos. The latter one includes glass fiber and rock wool, which are expensive but low-performance, and have been shown to be hazardous materials themselves. The substitutes are mostly used for friction and sealing material. But there are few suitable substitutes for the construction industry, where 85% of asbestos is consumed.

3) Public awareness: As a positive policy is adopted for asbestos use in China, researchers and media are talking more about the possible safety and safe use issues rather than the pollution hazards of asbestos. In the national meeting held by CNMIA, a report was presented that suggested safe use could be realized by controlling the emission density of asbestos to a certain level. The report also insisted serpentine asbestos was a safe and cheap mineral fiber because it could be discharged by the human immune system even after inhalation. After the meeting, the number of firms using asbestos increased. In this context, still some negative opinions are voiced, but they are weak and sometimes tactfully asserted.

The public including the citizens and the workers haven't recognized the danger of asbestos. A low level of public awareness was found through the field study in Xi'an in 2007 (Zhou 2008: 109-126). Even after detailed national standards for safe use were published, the workers of the factory that was surveyed in Xi'an still worked with bare hands, and no specific protective measures were adopted by the factory.

Discussion

Lessons from International Comparison on Environment policy and Asbestos Use

As explained before, the historical progress of asbestos usage in US and Japan were compared with those in China to arrive at some policy implications for China's asbestos problems. Figure-1 shows asbestos usage data from 1931 along with some important historic incidents. Similar histories can be found in the comparison of Japan with the US where unfortunately the Japanese delayed to respond and repeated the mistakes of the US with a 20 year interval. Both the US and Japan have implemented counter plans for a gradual and periodical prohibition of asbestos usage. However, China is confronting a more severe situation than Japan which applied stricter regulations following the US; this is because China is working in a slower pace according to a set of regulations and standards of positive policies. As such, asbestos usage is still increasing and a total ban in China is still far away in the horizon.

As shown in Figure 1, the US and Japan first found out about asbestos hazards in 1964 and 1972, respectively. The US started to control the use of asbestos from 1987, and Japan from 1988; they spent 14 years and 16 years to complete the ban, respectively. In addition, it can be seen that in 1970s when the US was reducing asbestos usage, Japan was right at the beginning of its peak use period. As the same time, in late 1980s while Japan was at its peak consumption, China experienced a period of rapid usage expansion. Now, China is the largest asbestos consumer in the world. The experts of CNMIA speculate that this tendency is unlikely to change within the next 10 years.

In 1978, the US government warned its citizens about the asbestos threats and completed the guidelines of asbestos waste management. Moreover, some of asbestos products were prohibited in 1993. In 2004, Japan amended and enacted the Enforcement Order of the Industrial Safety and Health Act and banned the import, production and use of 10 categories of products that contained over 1% of asbestos.

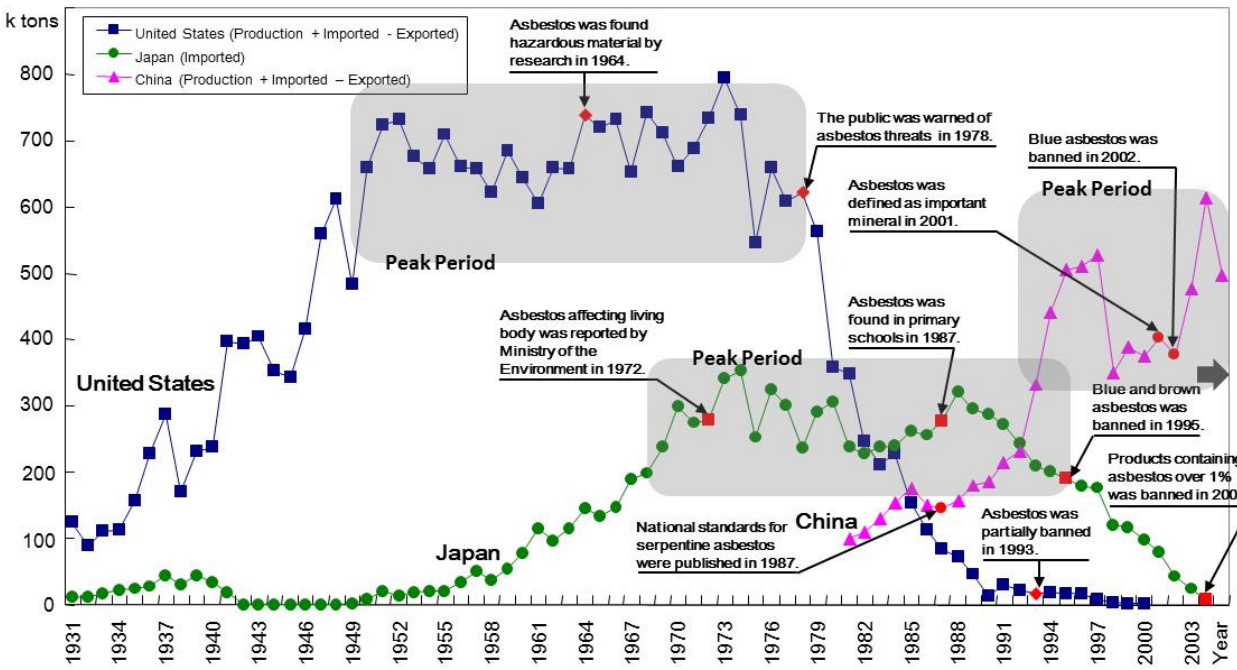


Figure1: International comparison of asbestos use (Source: the US Geological Survey (USGS), Japanese Ministry of Health, Labor and Welfare (JMHLW) and China Non-metallic Minerals Industry Association (CNMIA), Zhou 2008: 109-126)

In addition, since the Kubota Shock, Japanese citizens have learned about asbestos pollution from the media, symposiums and so on and have rejected the use of asbestos containing products. Therefore to solve asbestos problems, it is indispensable to provide correct information to the public via mass communication.

Environment policy has a life cycle, which can be divided into 4 phases: recognition of the problem, decision of the policies, policy enforcement and management improvement. Regarding the policy life cycle, the US is in the management improvement phase, and Japan is in the phase of policy enforcement, while China is still in the first phase of problem recognition (Zhou 2008: 109-126). It is clear that the damages caused by asbestos will continue in Japan and the US, so China should understand its position in the cycle and learn the needed lessons from their mistakes.

Outbreak of asbestos related health problems and their compensation

The first report on the health damages of asbestos was made based on the laboratory work of researchers, like other pollution substances used in the industries. It took a long process to recognize the damages and ban asbestos use in most countries including the US and Japan. There is a latent period until the damages of asbestos appear. It was reported that the average latent period was 20-30 years for mesothelioma.

Table 4 lists the main asbestos issues in the US and Japan. There were some social problems such as the Kubota Shock in Japan, or suing for exposure to asbestos in the US, which led to a thorough asbestos ban. The damage of asbestos can be estimated by applying information such as the dose and exposure area. In Japan, most houses and mansions had used construction materials containing asbestos that were going to be demolished or reformed. This attracted more public attention, because of the wide range of asbestos use in construction, happening 40 years after the asbestos peak. On the issue whether asbestos can be safely used or not, the facts mentioned above can't be denied, and neither the possibility of an outbreak of similar social problems in China.

Table 4: Main asbestos issues in the US and Japan

Main Issues	US	Japan
First report on the damage	1964 by researchers	1972 by Ministry of Environment
First report on mesothelioma	1972, due to air pollution	1978, workers 2005, neighboring residents
Public announcement	1978, warning to the public	1987, social problem happened
Peak usage	early 1950s to late 1970s, nearly 30 years; the average annual usage reached 700,000 t	early 1970s to early 1990s, about 20 years; the average annual usage reached 300,000 t
Estimated Impact	More than 200,000 asbestos related deaths estimated for the period from 1979 through 2001 by Environmental Working Group (EWG).	From 2000 to 2039, 100,000 deaths estimated to happen due to mesothelioma
Compensation Fund	140 billion dollars (90 billion from related businesses, 46 billion from insurance companies, 4 billion from bankrupt companies)	About 120 million dollars in 2007, mostly from the associated private companies.

Source: complied based on data from the Environmental Working Group Action Fund, and other documents

The estimated impact is also shown in Table 4. The mortality related to asbestos is estimated to be a large number. Besides, many more people may suffer from various lung diseases caused by asbestos, especially former workers of asbestos factories and their families. Hence, a compensation fund would be set up for taking care of the affected people. The compensation fund may be formed by the associated industries and businesses, and insurance companies such as the fund in the US and Japan. The asbestos lawsuits even resulted in the bankruptcy of several giant builders in the US. In other countries, the compensation fund was supported by the national government and resulted in a financial burden such as the famous FIVA in France. Considering the long term of compensation and the huge number of victims, the financial cost will probably be no less than the financial revenue from the asbestos related industries.

In China, diseases related to asbestos, such as mesothelioma and asbestosis, are categorized as occupational diseases. If confirmed, the medical expense is covered by the insurance for occupational diseases and the salary is paid as usual by the employers. However, the procedure from diagnosis, application and working disability assessment is usually not smooth and only applicable to the workers who still have their employment contracts. The part-time and retired workers are facing difficulties in paying for expensive medical expenses by themselves in case the diseases happen several years after their leave. The labor security bureaus are trying to improve the situation, but still just on a case-by-case basis due to the limited financial resources. Therefore, the Chinese government has not prepared well for the outbreak of asbestos related health problems.

Conclusion

In order to solve the asbestos problems, cooperation of various parties is required. Figure 2 shows the stakeholders involved in asbestos problems; this model can be used for a consideration of suitable solutions to the problem.

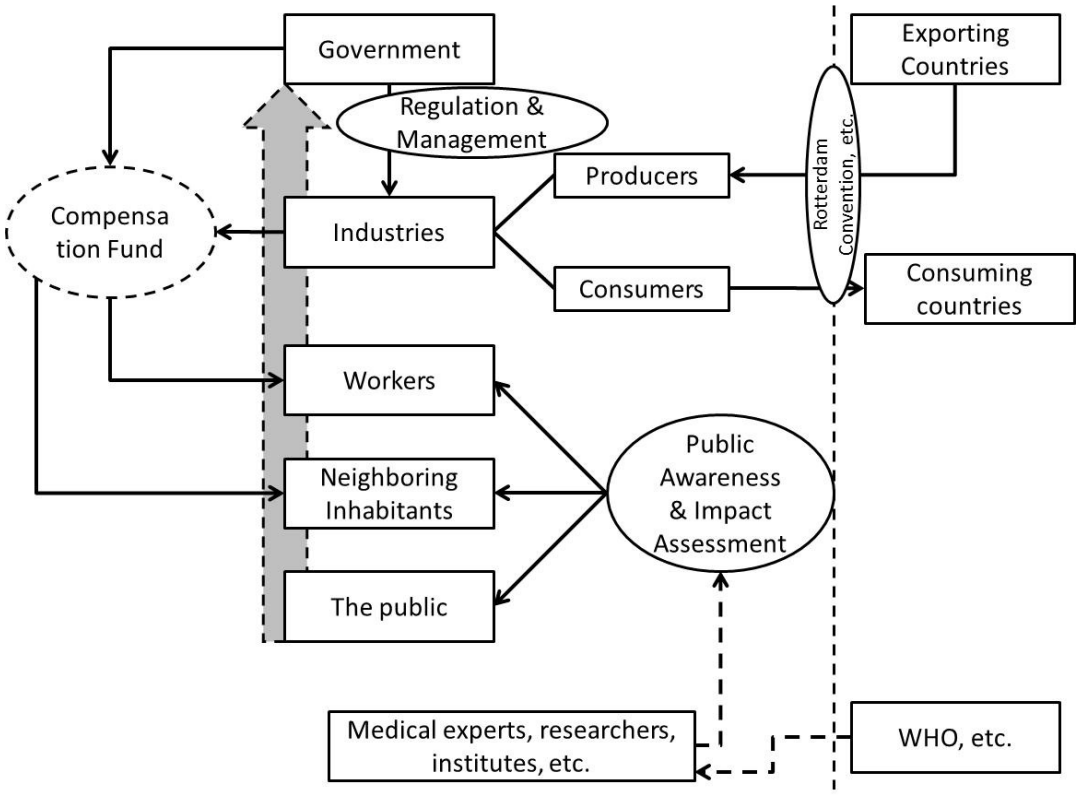


Figure 2: The stakeholders related to asbestos problems (source: authors)

Firstly, the government policies of asbestos use should be reconsidered for a longer term and a wider scope, by referring to the experiences and mistakes of countries such as the US and Japan. No matter how thoroughly the safe production and use of asbestos might be implemented, the impact on human health cannot be fully controlled without a total ban of asbestos. Once the direction is decided, the process can be well planned step by step by dealing with legislation issues, technical issues for substitutes, public health and awareness issues, and the economic issues for related areas and industries. The economic structure of asbestos production centers should be adjusted by the government through appropriate supports.

Secondly, regulations and laws need to be reconsidered. Even though the current regulations about asbestos use are not that strict, few of them can be obeyed. So instead of making stricter regulations, a supervision system and clear penalties should be legislated. Besides, accurate definitions and detailed entries should be added to eliminate grey zones, which may commonly be utilized for short-term profit in China.

Thirdly, still the most difficult obstacle is that there are few suitable substitutes for asbestos. Being suitable means having a good performance at an acceptable cost. From the viewpoint of industrial ecology, not only the materials but also a thorough process should be reviewed in a substitute solution. Moreover, a combination of measures may work well through the transition of the industries, i.e. Japan banned asbestos for industries which had introduced substitute materials and technologies while applying safe use policies to others which didn't have substitute solutions.

Finally, the process of reducing asbestos use was started or accelerated after it caused social problems in the US and Japan. Therefore, after people realized the hazards of asbestos, the whole country was warned and therefore resulted in a move towards a total ban. Public awareness and consciousness for self-protection are the best supervisors of the public and environmental health. The survey in Xi'an (Zhou 2008: 109-126) shows that people who lived close to asbestos

relevant factories in China started to learn about this fact and from there this awareness spread to all over the country. Furthermore, it would be a good idea to encourage the medical experts and research institutes to perform objective investigations on asbestos issues, publish more reports for public perception and raise the public awareness.

Overall, it can be said that with so many stakeholders involved, asbestos problems are complicated and need a comprehensive consideration. Because the damage of asbestos occurs long before we learn about it, after a long latent period, we should take actions as early as possible. There are other hazardous materials used in industries besides asbestos. Research on asbestos problems may contribute to similar cases for a more healthy and sustainable environment.

References

China Non-metallic Minerals Industry Association, 2003. *Application and Development of Asbestos in China*. Asbestos Committee of China Non-metallic Minerals Industry Association.

China Non-metallic Minerals Industry Association, 2006. *Research for Safe Use of Serpentine Fibers and Its Development in China*. China Non-metallic Minerals Industry Association.

China Non-metallic Minerals Industry Association (CNMIA). http://www.cnmia.cn/ (accessed May 2, 2012).

International Ban Asbestos Secretariat. 2009. "Current asbestos bans and restrictions: London, International Ban Asbestos Secretariat." http://ibasecretariat.org/lka_alpha_asb_ban_280704.php (accessed May 11, 2012).

Japanese Ministry of Health, Labour and Welfare (JMHLW) . http://www.mhlw.go.jp/ (accessed May 2, 2012).

Miyamoto, K., Kawaguchi K. and Obata, N. eds, 2006. *Asbestos Problems: what to consider and how to solve*. Iwanami Press.

Mori, H. 2010. "Lessons from Asbestos Problems in Japan." *Ritsumeikan: Policy Science & Public Policy* discussion paper No.15.

Murayama, T. 2002. "Prediction of death caused by mesothelioma in Japan." *Journal of Occupational Health* l(44): 328.

Rong, K. 2006. "Current situation of serpentine asbestos and its Substitutes", *Procedings of Research for Safe Use of Serpentine Fibers and Its Development in China*: 132.

Rotterdam Convention. "Annex III Chemicals." http://www.pic.int/TheConvention/Chemicals/AnnexIIIChemicals/ (accessed May 11, 2012)

U.S. Geological Survey (USGS). "Worldwide Asbestos Supply and Consumption Trends from 1900 through 2003." http://www.usgs.gov/(accessed May 2, 2012).

Zhou, W., Lu, F. and Nakagami, K. 2008. "Study on the Currant Asbestos Use in China." *Policy Science* Special issue of asbestos problems: 109-126.

ORIGINAL RESEARCH:

Defining Thai Product Quality in the 21st Century

Pajaree Ackaradejruangsri[1]

Abstract

There is no single universal definition on product quality. Different people may have a different view of product quality, which makes it difficult to define product quality. This research takes Thailand as a case study, and by examining 4 different key sectors through interviews and questionnaires, shares the opinions and thoughts they have on Thai product quality. As a result, the research proposes an updated definition of Thai product quality as: "being good in all aspects plus fitness with the intended use". This definition is associated with significant product values for Thai people which include "reliability", "function", and "durability" as the most influential attribution factors on consumer buying decision. Furthermore, "support service", "value for money" and "adaptability" are other important attribution factors that Thai people use in evaluating product quality.

Keywords: Attribution factors, Interview study, Product quality, Questionnaire study, Thailand.

Introduction

In order to win, maintain one's position, or just to survive the competition in an open market, firms need to come up with strategies that can exploit the market, shape consumer preferences, and deliver their expectations, so that in return they are rewarded with a larger market share (Kalyanaram et al. 1995, Carpenter and Nakamoto 1989, Robinson and Fornell 1985). Winning the market through innovation by launching a new product is one of the most common strategies that firms may use. However, there is compelling evidence through a number of studies that only introducing new products in order to become the first movers into a market may not guarantee a big advantage or success (Golder and Tellis 1993, Shankar 1999, Zhang and Narasimhan 2000); many of the recently developed gadgets have demonstrated countless failures. In fact, simply delivering superior product quality might be the most important key in appealing to the today's markets (Tellis and Golder 2001).

Although everyone seems to understand what "product quality" means, there is no universal definition of it. There are several reasons for this; first, the term "quality" is very difficult to define, measure, and assess with clarity, and second, the character of quality is also changing over time (Curry and Fauld 1986). Accordingly, when it comes to product quality, it is challenging to agree on one absolute definition. This includes differences in perspectives and academic paradigms.

Therefore, the research question I ask here is the definition of product quality, and especially "what could be the definition of product quality in the 21st century in Thailand?" Up to now, there has been no research on product quality definition in a specific country or region. This research examines and reviews previous empirical studies to see how experts and scholars had defined product quality so far. The research takes place in Thailand and applies executive interviews with government officers, producers or manufacturers of product, and intermediate sellers, as well as customer opinion-based questionnaires at point of sale (POS). As such, the research presents the effects of quality attributions on Thai consumer buying decision, and the prospects of Thai product quality; it also proposes a more up to date definition of product quality, specifically for the case of Thailand, in three product categories: electronics or IT

[1] Graduate School of Asia Pacific Studies, Ritsumeikan Asia Pacific University (APU), Beppu City, Japan
e-mail: Pajaree.ack@gmail.com

products, automobiles, and home appliances. Furthermore, the research outcomes, thoughts and views from four different sectors reveal the missing gaps between the regulators, market suppliers and consumers' opinions on product quality and this might improve product quality improvement in Thailand as a whole.

In literary terms, the word "quality" is derived from an old French word *"qualite",* and *"qualitas"* in Latin; this term originally refers to 'character, disposition' and 'particular property or feature' (Baldick, 2008). The definition of quality in the Merriam-Webster Dictionary is an intelligible feature by which a thing may be identified, or degree of excellence or superiority in kind, whereas in Cambridge Advanced Learners' Dictionary, quality means how good or bad something is, or a characteristic or feature of something. Indeed, these dictionary definitions are usually adequate to help general audience understand the basic concept of quality. But in term of management and business practice, these quality definitions are inadequate; quality management experts and scholars for many years have tried to define quality/product quality in various implications. Differences in perspectives and academic paradigms are the basis for delivering a variety of definitions for quality/ product quality.

Quality Digest, the leading magazine that covers a wide range of quality issues with general interest, asked their readers about the meaning of quality in their December 1999 article and requested them to participate by sending their definitions of quality. As a result, more than eighty readers sent their quality definitions which were then posted on the *Quality Digest Online*. Many readers came up with interesting definitions, such as "Quality is the expression of human excellence", "Quality is being clean, precise, and flawless", "Quality is meeting the customer's needs in a way that exceeds the customer's expectations" or "Quality is the best value for money". In addition, many also quoted numerous famous definitions from quality experts/gurus: Philip B. Crosby, A.V. Feigenbaum, Peter Drucker, W. Edward Deming, Joseph M. Juran, Genichi Taguchi, Subir Chowdhury and etc. Some of these quality definitions and interpretations are given in Table 1.

Table 1: Some famous definitions of quality offered by the related experts

"Quality is conformance to requirements"	(Crosby, 1979)
"Quality is the total composite product and service characteristics of marketing, engineering, manufacturing and maintenance through which the product and service in use will meet the expectations of the customer"	(Feigenbaum, 1983)
"Quality in a product/service is not what the supplier puts in; it is what the customer gets out and is willing to pay for"	(Drucker, 1985)
"Quality in customers' perception is the only thing that matters"	(Deming, 1986)
"Quality is those features of products which meet customer needs and thereby provide customer satisfaction", "Quality is freedom from deficiencies", and "Quality is fitness for use",	(Juran, 1988)
"Quality is loss avoidance"	(Taguchi, 1995)
"Quality combines people power and process power"	(Chowdhury, 2005)

Other quality oriented professional groups, for instance, the American Society for Quality (ASQ), ISO 8402:1994 and ISO 9000:2005 have also developed their own quality vocabulary or standard. For the American Society for Quality (ASQ), quality refers to the characteristics of a product or service that bear on its ability to satisfy the stated or implied needs free of deficiencies. For ISO 8402:1994, quality is the total features and characteristics of a product or service that bear on its ability to satisfy the stated or implied needs, while quality in ISO 9000:2005 means the degree in which a set of inherent characteristics fulfill requirements.

Defining product quality becomes much more complicated when we look at different perspectives and academic paradigms. In the manufacturing/supply base, producers define product quality as the degree to which the product was produced correctly and conformed to the requirements. On the other hand in the user/demand base, consumers focus on product quality over specifications in which the product satisfies the consumers' needs and wants. Considering the product alone, product quality puts more emphasis on measurable variables; the differences in product quality may also reflect the differences in product quantity. Yet in term of value, product quality is evaluated at acceptable costs and acceptable prices.

Quality/Product quality is also defined differently in various academic paradigms. In engineering, quality is seen as product integrity and a way to reduce cost. In perceived quality, quality is referred to consumers' perception of overall product quality with respect to intended purpose and relative alternatives. Moreover, in quality review, the terms quality assurance and quality control are often used to verify and confirm that all criteria meet the requirements.

Thus there is no single universal or even national definition of product quality. To summarize, here are the common definitions of product quality that may be shared among various perspectives and academic paradigms: *Conformance to specifications;* means how well a product meets the targets, free from errors and tolerances determined by its designers. *Fitness for use;* focuses on how well a product performs its intended function or use. This also essentially means *meeting and exceeding consumer expectations. Value for price paid;* refers to how well a product quality is worth in comparison to its price as well as economic value. As quality/product quality is a perception, depending on the conditions and subjective attributions, some definitions may be more correct and appropriate. However, search for a universally valid definition of product quality may continue forever, because of the changing perceptions and times.

Methodology

Two primary data collection methods, interview and questionnaire, were applied as tools in conducting this research. During February and March 2012, personal or executive interviews were carried out with government officers, producers/manufacturers of products, and intermediate sellers in Thailand. All three different sectors of participants were asked the same set of questions: in your opinion, *"what are the factors that influence customers' decision in buying a product?"*, *"what is/are other factor(s) that can be used to evaluate product quality?"*, *"what is your definition of product quality?"*, *"what could be the differences in today's product quality and the next 5(10) years' product quality?* and *"Why do you think that?"*

Regarding the first interview question, *"what are the factors that influence customer's decision in buying a product?"*, the participants were requested to rank their preferences in seven given attribution areas, including "function", "ease of use", "reliability", "durability", "design", "eco-friendliness", and "customer satisfaction". These seven attribution factors were identified as follows: *Function:* the ability and performance of a product compared with previous or similar type of product, e.g. speed, technology, etc. *Ease of use:* easy use without any difficulties. *Reliability:* creditability, market recognition, brand awareness, etc. *Durability:* performance over a long period of time without technical error and physical breakdown. *Design:* color, size, weight, etc. *Eco-friendliness:* green material, recyclable, energy saving, carbon credit, etc. *Customer satisfaction:* customer overall satisfaction with previous experience of usage of the same brand product or same company.

The three different sectors of participants included government officers, producers/manufacturers, and intermediate sellers. The ethical issues of this study were taken into consideration; all persons interviewed for this

study provided an informed consent to the researcher for the use of their feedback information on product quality for research purposes and an academic publication. No names of persons are mentioned and the position of the individuals is only revealed in an academic context with no intention of use for promotion or any other possible non-academic purposes. This paper has used the collected data with the consent of the interviewees and only in an academic perspective, particularly in regard with the concept of product quality.

As for *Government Officers*, three government officials, including two chief central government officers and one district government executive officer, participated in the interview. The Permanent Secretary of the Ministry of Industry of Thailand, and the Director of One Stop Export Service Center represented the opinions of the central government, whereas the Executive Chairman of Industrial Promotion Region 9[2] represented the local government views. The three government officials shared their opinions and thoughts on the mentioned product quality questions, and the questions were intended for an understanding of their perception regarding overall product quality.

As for *Producers/Manufacturers*, four different producers/ manufacturers in three distinctive product categories participated in this interview. From electronics or IT products, such as mobile phone, computer, laptop, and tablets, the general manager of the Chonburi branch of a very famous smart phone company shared his opinions on electronics/IT product quality subjects. From the automobiles industry, the general manager and customer quality-engineering department of a large Japanese carmaker, and the department manager of another famous Japanese carmaker took part in the interview. From the home appliances sector, including television, refrigerator, washing machine, and air conditioner, the deputy general manager and quality assurance department of a well-known Japanese maker of home appliances shared his points and visions on home appliance product quality issues.

As for *Intermediate Sellers,* eleven executive interviews were made with intermediate sellers in Chonburi Province. Four store managers/salespersons in the area of mobile phones and other electronics represented the electronics and IT products sector. Four general managers of local branches in Chonburi of four major Japanese carmakers, represented the automobiles sector, and three general store managers in the home appliances market represented the home appliances sector.

All interview participants were selected based on their major duties and responsibilities over product quality. For instance, among government officers, the Permanent Secretary of the Ministry of Industry of Thailand is responsible for the promotion and regulation of all industries, including regulation and standards of quality control and quality assurance; the Executive Chairman of Industrial Promotion of Region 9 is responsible for monitoring and administering local business/manufacturing operations in Thailand's 6 top industrial provinces (Rayong, Chanthaburi, Trat, Chonburi, Samut Prakan, and Chachoengsao) to ensure that all activities are aligned with the central government regulation and international standards. In addition, the interviews with general managers/department managers were made with the leading manufacturer companies in three different industries, including electronics/IT products, automobiles (local sales branches of Japanese brand automobile companies), and home appliances. The research was able to obtain some in-depth information, true opinions and outlooks towards product quality issues.

As for the questionnaire study, through March 2012, customers' opinion based questionnaires on product quality were handed out to three consumer target groups at various stores and shopping malls in Chonburi Province. Chonburi Province is a very diverse place and good for sampling as it may represent the Thai dynamic population with its fast growing industry and manufacturing center, business commerce, and as a destination for tourists, with many job

[2] Industrial Promotion Region 9 is operating directly under Ministry of Industry of Thailand. Since its establishment, the Industrial Promotion Region 9 is the biggest and most profitable industrial region of the country. The operation areas cover 6 major industrial provinces, which are Rayong, Chanthaburi, Trat, Chonburi, Samut Prakan, and Chachoengsao, see www.dip.go.th.

opportunities. In order to capture consumer's real perception at real time, 500 questionnaires were distributed to the consumers at point of sale (POS) at central locations in Chonburi. Right after their purchases, consumers were asked to fill out and answer the following questions: *"What kind of product(s) did you buy today?", "what factors influence your decision in buying a product?", "what is your definition of product quality?", "what is/are other factor(s) that can be used to evaluate product quality?", "what could be the differences in today's product quality and the next 5 years' product quality?* And *"why do you think that?"*

Similar to the executive interview, for the second question of *"what are the factors that influence customer's decision in buying a product?"*, the respondents were requested to rank their preferences in seven various attributions. Moreover, in order to make the results comparable across sectors, the research applied a similar set of closed and open ended questions to those three target consumer groups who had just bought a mobile phone, computer, laptop, tablet, car, television, refrigerator, washing machine, or an air conditioner. Even though there were difficulties in approaching and convincing consumers to fill out the questionnaires and some interpreting complications, in the end, the research was able to collect 308 filled out questionnaires.

Findings and Results

This section presents the results and data analysis in three subsections: effects of attributions on consumer buying decision, prospects of product quality, and product quality definition.

Effects of Attributions on Consumer Buying Decision: the attributions that were used in exposing the effect and influence on consumer buying decision included *function* (the ability and performance of a product compared with previous or similar type of product, e.g. speed, technology), *ease of use* (easily used without any difficulties), *reliability* (creditability, market recognition, brand awareness, etc), *durability* (performance over a long period of time without technical error and physical breakdown), *design* (color, size, weight,…), *eco-friendliness* (green material, recyclable, energy saving, carbon credit, …), and *customer satisfaction*.

All three government officers gave a perfect score of 7 and agreed to rank "function" as number one with the most influence on consumer buying decision, followed by "ease of use", "reliability" and "durability", "design" and "customer satisfaction", while "eco-friendliness" was ranked at last. On the other hand, producers/manufacturers said that "reliability" should have the most influence, whereas "function", "durability", "customer satisfaction", "ease of use", "design" and "eco-friendliness" had respectively less influence. Comparably, intermediate sellers upheld that "reliability" have the most influence over the other attributes of "function", "design", "customer satisfaction", "durability", "ease of use", and "eco-friendliness" on consumer buying decision. The interview result on the effect of attributions on consumer buying decision by ranking is illustrated in Table 2.

Table 2: Ranking the attribution factors on consumer buying decision by government, producer/ manufacturer, and intermediate seller sectors

Participants	Ranking Attribution Factors						
	Function	Ease of use	Reliability	Durability	Design	Eco-friendly	Satisfaction
Gov.	1	2	3	3	5	7	5
Producer	2	5	1	3	6	7	4
Int. seller	2	6	1	5	3	7	4

Note that 1 means the attribution factor received the greatest scores on ranking and assumes to have the most influence on consumer buying decision, and 7 is the lowest score. Equally ranked numbers mean those attribution factors were exactly placed at the same total scores.

In addition in terms of average point (mean), the result of average point for each attribution on consumer buying decision varied among these three sectors. Table 3 below indicates the average point for each attribution evaluated by the government sector, producers/manufacturers, and intermediate sellers.

Table 3: Average point of attribution factors on consumer buying decision by government, producer/manufacturer, and intermediate seller sectors

Participants	Average Point of Attribution Factors						
	Function	**Ease of use**	**Reliability**	**Durability**	**Design**	**Eco-friendly**	**Satisfaction**
Gov.	7.0	5.3	4.7	4.7	2.7	1.0	2.7
Producer	4.75	3.5	6.75	4.5	3.25	1.25	4.0
Int. seller	6.42	3.58	7.0	4.25	6.08	2.08	5.58

Note that the average point of 7 means the attribution factor received the perfect/greatest scores and assumes to have the most influence on consumer buying decision and 1 is the lowest score; equally evaluated at the same average point by each sector means those attribution factors were exactly placed at the same total scores.

The governments and producers/manufacturers valued "function", "reliability", and "durability" as the most influential attributions on consumer buying decision, whereas intermediate sellers appraised "reliability", "function", and "design" as the most influential attributions. However, all three sectors agreed to evaluate "eco-friendliness" as the least influential one. Besides that, the government officials also ranked "function" and "eco-friendliness" with an absolute average point of 7 and 1; also many of attribution factors were evaluated at the same average points. These could imply that some of attributions evaluated by government officials have somewhat identical significance; unlike producers/ manufacturers and intermediate sellers, they evaluated each attribution distinctively. These could denote that each attribution has a diverse significance; in other words, the average points of attribution factors evaluated by the latter 2 sectors have a smaller variance, the variance for government is 4.04, for producers/ manufacturers 2.79, and for intermediate sellers 3.10. Variance, "the average of the squared differences from the mean" in this study refers to the "the average of the squared differences from the average point of attribution factor".

In fact, the results in table 2 and table 3 show that the government, producers/manufacturers, and intermediate sellers strongly suppose "reliability" and "function" to have the utmost effect on overall consumer buying decision; in contrast, eco-friendly attribution factor should be the least influential one.

For the second question, *"what is/are other factor(s) that can be used to evaluate product quality?"* all three sectors similarly pointed out that "support service", "value for money", and "adaptability" could be the possible attribution factors in evaluating product quality. The three sectors refer to the term "support service" as the support attached to a product since the consumer walks into the store, makes a decision to buy or even not to buy, and after a product is bought. Although the support service attribution factor is intangible and a consumer cannot possess it, they can see and feel the support service. This kind of perception might have a strong impact on consumer decision and evaluation of product quality. Furthermore, as Thai consumers are very price sensitive, the attribution factor that possibly fits with today's economics could be "value for money"; this includes the original price compared with other brands or companies who provide a similar type of product, the price of repairing parts, and the price of resell as second hand. Finally "adaptability" means that disregarding the particular brand and company, a product should be usable and adjustable with other brands; adaptability could be one of the potential attribution factors that consumers might consider when considering to buy a quality product.

Questionnaire Results: Out of 308 respondents, 144 were consumers of electronics and IT products, 77 were of automobiles, and 87 were of home appliances. In electronics/IT product's responses alone, "function" played the most

influential role on their buying decision, followed by "reliability", "design", "durability", "ease of use", "customer satisfaction", and "eco-friendliness". Automobile product respondents gave a slightly different evaluation; for them, "durability" had the most effect on their purchasing decision but durability did not have a much larger weight effect than other attributions of "reliability", "eco-friendliness", "design", "customer satisfaction", "function" and "ease of use". These attributions' scores were insignificantly greater or lesser than one another. Similarly, "durability" and "reliability" were judged as the first and the second influential attributions by home appliance respondents, then "function" and "ease of use", "eco-friendliness", "design", and lastly "customer satisfaction". Table 4 shows the attribution factors on consumer buying decision ranking by consumers of the three different categories of products.

Table 4: Ranking attribution factors on consumer buying decision by consumers of electronics/IT products, automobiles, and home appliances

Respondents	Ranking Attribution Factors						
	Function	Ease of use	Reliability	Durability	Design	Eco-friendly	Satisfaction
IT	1	5	2	4	3	7	6
Auto.	6	7	2	1	4	3	5
Home App.	3	3	2	1	6	5	7

Recall 1 means the attribution factor received the highest ranking and assumes to have the most influence on consumer buying decision; equally ranked number by each product respondent means those attribution factors were exactly placed at the same total scores.

The result of the average point for each attribution on consumer buying decision was slightly different among these 3 products consumers. Table 5 shows the average point for each attribution evaluated by consumers of electronics/IT products, automobiles, and home appliances.

Table 5: Average point of attribution factors on consumer buying decision by consumers of electronics/IT products, automobiles, and home appliances

Respondents	Average Point of Attribution Factors						
	Function	Ease of use	Reliability	Durability	Design	Eco-friendly	Satisfaction
IT	5.47	3.92	4.39	3.94	4.19	2.26	3.84
Auto.	3.62	3.38	4.40	4.48	4.17	4.21	3.74
Home App.	4.16	4.16	4.36	4.75	3.56	3.61	3.46

Recall the average point of 7 means the attribution factor received the greatest scores and assumes to have the most influence on consumer buying decision; equally evaluated at the same average point by each sector means those attribution factors were exactly placed at the same total scores.

For electronics/IT products, the consumers agreed that "function" was the most important attribution at the average point of 5.47. This very high average point means the majority of electronics/IT product respondents favorably gave 5 and above points (6, 7) to the "function" attribution. Contrary to the automobile and home appliance products, the consumers viewed "durability" to be their first influential factor; however, the average points of these two respondents were not greater than the other 6 attributions, and instead all seven attributions were evaluated to have nearly the same weight. Furthermore in terms of variance, the variances of electronics/IT product, automobile, home appliance respondents were 0.9, 0.17, and 0.23, respectively. The attribution factors evaluated by respondents in the three product categories proved to have a roughly equal significance and influence on the consumers' buying decision.

The results in table 4 and table 5 above indicate that consumer-purchasing (attribution) factors are varied and depend on each product category. However, still there is substantial evidence that "reliability" and "durability" are the

most influential attribution factors on consumer buying decision; unexpectedly "customer satisfaction" was the least influential one.

Also 177 consumers answered the question, *"What is/are other factor(s) that can be used to evaluate product quality?"* Similar to the first 3 sectors' opinions, consumers specified that "support service" and "value for money" were the two most recorded factors that could be used in evaluating product quality. In addition, other potential factors might be "product guarantee", "feedback and review from previous users", "product description", "net sales in the market", "advertisement", as well as "adaptability". The consumers' opinions reveal that secondary data such as feedbacks and reviews, performance of a product in the market and advertisement have certain significance on their perception, decision, and product quality evaluation.

Discussion

The prospect of product quality in Thailand: All of the interview participants and questionnaire respondents shared parallel thoughts and ideas on the question, *"What would product quality be in the next 5 years?"* The government representative, the Permanent Secretary of the Ministry of Industry of Thailand, said things around us are changing over the time and the needs of humans will certainly change accordingly. Consumers will definitely ask for more superior quality, quantity, usability, accessibility, and a better lifetime quality. Things will get more complicated. There will be many more players in the market; the market will open more for free competitions, and many crises will await us all-around.

In addition, the general manager and customer quality-engineering department of a large Japanese carmaker added that besides the improvement in product quality, the quality producers/manufacturers, and all stakeholders, will also improve. In very short years, the production process in all industries will require high technology, more creativity, and flexibility, and readiness for any changes. The producers/manufacturers have to fight in order to keep their costs down, enhance their services, and focus more on the society. These are the key activities that will increase their product quality as well as productivity, maintain the profits, and sustain their position, while they still can play compatibly with the laws and regulations.

The store general manager, of an electronics store in Chonburi, specified that a new generation product should satisfy the overall market and consumer's expectations. Many aspects/factors will be taken into consideration and have effect on consumer buying decision. One of those would be the service; a business that gives better services will survive in the market. Interestingly the point that he and many intermediate sellers mentioned is a bit in contradiction with product development; a new breed product might not last long, as a product is composed of many parts and this is also a result of keeping the price down.

Last but not the least, the consumer's opinion toward the prospects of product quality is very simple. It is mainly dealing with their feelings of expectation, experience, and satisfaction. They expect a better and higher quality product that answers their needs and fulfils their wants.

Considering all opinions together, in the next five years, the market may become very competitive; it may be fledged with numerous innovative products, better designs, and high technology resolutions at competitive prices in various accessible channels. Thus, consumers will become more selective and more concerned with details. They expect to see more improvement and additional values to a product quality. Therefore many participants and respondents believe that in the next five years, product quality will develop in various aspects; sophistication in both hardware and software, safety for human life, achieving international standards, delivering superior services, going

toward green concepts, higher efficiency with long term usability, and above all answering consumers' needs and exceeding consumers' expectations. Moreover, the future scope of product quality is not restricted to the final or ready to use outcomes, but product quality should improve throughout all processes. It should be a fair game that is good for the producer, buyer, user, society, and the ecosystem.

However, some participants and respondents argued that as product quality becomes more advanced by adding up new technologies, smaller size and lighter weight, containing many tiny chips and parts, product quality in the next 5 years, in term of durability, and life cycle may become shorter. Furthermore, quality itself might not develop as much as market expects; this is mainly due to an aggressive war price, reduction in production cost, and an increase in the sale turnover rate.

All in all, product quality will unquestionably differ from today and vary in many aspects, and it will somehow uphold on extension path; how far and how long will this continue or how deep it may fall onto a rough road, the future of product quality depends largely on all players.

Product Quality Definition: Different people view product quality differently and what could be a definition of product quality. The government officers, producers/manufacturers, intermediate sellers, and consumers gave their thoughts and opinions on this. Their precise product quality definitions are summarized as follows:

Regulators: To meet the standard, accomplish all requirements, follow rules and regulations, be harmless and fit with intended use, is the basis for product quality. However, only by meeting and achieving these fundamentals, the country's economy and manufacturing industry could not develop nor make any growth; firms possibly lose competitiveness, or there would be less value added to a product and consumer. Therefore, the government officials believe a good definition of product quality should comprise and outperform all those mentioned essences as well as generating additional value.

Market Suppliers: To deliver a product at the right "SPECCC" (safety, good performance, eco-friendliness, comfort in all aspects, consistency, and continuous improvement), and respond to consumer needs in time would be producers/ manufacturers and intermediate sellers' definition of product quality. However, as consumers value product quality and decide their purchase more based on feelings and perceptions, the two sectors agreed that support services would be another important component on the definition. Thus, a definition of product quality would be "SPECCC+RS".

Consumers: Meeting their needs and exceed their wants, value for money, excellence in both hardware and software, and brand recognition, are the important attribution factors and this is the definition of product quality given by Thai consumers.

Indeed, the regulator's product quality definition is an outline that guides how market suppliers should perform and what should be delivered to the consumers. The market supplier's definition is meeting up with the requirements and delivering the expectations. Last but not the least, the consumer's definition of quality is simple as meeting their needs and satisfying their wants.

Conclusion

A search for product quality definition in the case of Thailand has yielded significant results. First, *reliability*, *function*, and *durability* are the 3 most important attribution factors that have the most influence and effects on Thai consumers' buying decision. From the consumers' perspective, all the 7 attribution factors have approximately an equal weight and

influence on Thai consumers' buying decision. *Eco-friendliness* also has more impact on Thai consumers' buying decision than the regulators and market suppliers viewed.

Second, *support service*, *value for money*, and *adaptability* are additional attribution factors, which all sectors believed could be applied and have an effect on evaluating the Thai product quality. Third, *to meet quality standards and requirements*, *excellence in both hardware and software*, *supplement support service*, *continuous improvement*, *fitness with intended use*, *be economic and environmental friendly, satisfy consumer needs/wants and exceed consumer expectations* are common definitions of product quality defined by Thai regulators, producers/manufacturers of the products, intermediate sellers, and consumers.

In conclusion, a more precise definition of product quality in the 21st century in the case of Thailand is *"good in all aspects and fitness with intended use"; good in all aspects* implies good in both hardware and software, also economically, and environmentally, while *fitness with intended use* signifies the use in the regulator's perspective, use in the manufacturer's perspective, and use in the users' perspective.

By implementing the Thai product quality definition, regulators can ensure that market suppliers perform accordingly to the requirements as well as deliver additional values to fulfill the expectations that finally satisfy consumers' needs and wants, and create new experiences for the market and consumer.

Finally, this research has several limitations, some of which could serve as possible areas for future studies. First, the research interprets only three executive interviews with government officers, four executive interviews with producers/ manufacturers, and eleven executive interviews with intermediate sellers, and considers it as the overall 3 sectors' opinions. These participant numbers might not be significant enough to represent all three sectors population.

Second, the research does not imply other determinants such as gender, age, education, and monthly income in evaluating the effects of attribution factors on consumer buying decision. The result of the effects of attributions on the consumer decision might be inclusive. Third, the research does not assess the effects of attribution factors on product quality nor tests the validity of Thai product quality definition. It would be very interesting to test the effects on Thai product quality and to see the validity of the proposed product quality definition.

References

American Society for Quality, *Glossary - Entry: Quality*, retrieved 20 July 2008.

Baldick, C. 2008. *The Oxford Dictionary of Literary Terms (Oxford Paperback Reference).* New York, United States: Oxford University Press Inc.

Carpenter, G. S. & Nakamoto, K. 1989. Consumer preference formation and pioneering advantage. *J. Marketing Res.* 26(3): 285-298.

Calfa, J. 2010. *Let's Talk About Quality.* Retrieved 28 july 2012, from: What is Quality? http://onquality.blogspot.jp/2010/04/what-is-quality.html

Cambridge University Press, C. U. 2008. *Cambridge Advanced Learners Dictionary.*Cambridge, The U. K.

Chowdhury, S. 2005. *The Ice Cream Maker: An Inspiring Tale About Making Quality The Key Ingredient in Everything You Do*. New York: Doubleday, Random House.

Crosby, P. 1979. *Quality is Free.* New York: McGraw-Hill.

Curry, D. & Faulds, D. 1986. Indexing product quality: Issues, theory, and results. *J. Consumer Res.* 13: 134-143.

Deming, W. E. 1986. *Out of the Crisis*. MIT Press.

Deming, W. E. & Walton, M. 1988. In W.E. Deming & M. Walton, *The Deming Managment* (p. 88). Perigee.

Drucker, P. 1985. *Innovation and Enterpreneurship.* Harper & Row.

Feigenbaum, A.V. 1983. *Total Quality Control*, McGraw-Hill.

Golder, P. N. & Tellis, G. J. 1993. Pioneering advantage: Marketing logic or marketing legend. *J. Marketing Res.* 30(2): 158-170.

Government, C. 2011. *About Chonburi*. Retrieved 25 April 2012, from Chonburi Governmaent official homepage: www.chonburi.go.th

Ittner, C. & Larcker, D. F. 1997. Product development cycle time and organizational performance. *J. Marketing Res.* 34(2): 13-23.

Juran, J. M., Gryna, F. M., & Bingham, R. S. 1988. *Quality Control Handbook.* McGrew-Hill.

Kalyanaram, G., Robinson, W. T. & Urban, G. L. 1995. Order of market entry: Established empirical generalizations, emerging empirical generalizations and future research. *Marketing Sci.* 14(3): 212-221.

Kotler, P. 1999. *Kotler on Marketing: How to Create, Win, and Dominate Markets.* USA: Simon and Schuster.

Merriam-Webster. 2005. *The Merriam-Webster Dictionary.* Springfield, MA, USA: Merriam-Webster Incorporated .

Quality, How Do You Difine It? 1999. Retrieved 20 April 2012, from Quality Digest: http://www.qualitydigest.com/html/qualitydef.html

Robinson, W. T. & Fornell, C. (1985). The sources of market pioneer advantages in the consumer goods industries. *J. Marketing Res.* 22: 297-304.

Shankar, V. 1999. New product introduction and incumbent response strategies: Their interrelationship and the role of multimarket contact. *J. Marketing Res.* 36(3): 327-344.

Taguchi, G. 1995. "Quality engineering (Taguchi methods) for the development of electronic circuit technology". *IEEE Transactions on Reliability* (IEEE Reliability Society) 44 (2): 225-229.

TC 176/SC. 2005. *ISO 8402:1994, Quality management systems, Fundamentals and vocabulary*. International Organization for Standardization.

TC 176/SC. 2005. *ISO 9000:2005, Quality management systems, Fundamentals and vocabulary*. International Organization for Standardization.

Tellis, G. J. & Golder, P. N. 2001. *Will and Vision: How Latecomers Grow to Dominate Markets.* McGraw-Hill, New York.

Zhang, J. & Narasimhan, C. 2000. Market entry strategy under firm heterogeneity and asymmetric payoffs. *Marketing Sci.* 19(4): 313-327.

ORIGINAL RESEARCH:

Measurement of technological progress through analysis of learning rates; the case of the manufacturing industry in Mexico

Behrooz Asgari[1], Jose Luis Gonzalez-Cortez

Abstract

The development and advancement of a manufacturing industry relies on specialization changes over time with a shift from low-tech labor-intensive to high-tech capital-intensive industries. The stocks of knowledge and technological capabilities influence the technological progress of an industry. We analyzed the Mexican manufacturing subsectors and estimated their progress ratios through a linear and a cubic model integrated into the neoclassical production function. The purpose was to determine whether Mexico has moved from labor-intensive to capital-intensive industries, and which subsectors would perform better. Three main patterns of technological learning were found among various industries; a convex learning path with continuous forgetting or learning at the beginning but forgetting afterwards, a concave learning path with forgetting in the beginning but learning afterwards, and a concave learning path with continuous forgetting. To sustain industrial and economic growth, Mexico could prioritize the mid-low and mid-high-tech industries that show learning potentials, and adjust its technology policy structure to reverse the high-tech industry performance. Policies to support the food industry are recommended as it has been very competitive and shown a high assimilation capacity.

Keywords: Learning curve, Manufacturing industry, Mexico, Progress ratio, Technological progress

Introduction

Macroeconomic policies in Mexico have undergone major changes over the last 40 years. Prior to the 1970's, the Mexican economy was under the control of the government through state-owned companies and strict controls over the domestic market and international trade, but in the early 1980's the recommendations by the International Monetary Fund and the World Bank resulted in several "neoliberal policies" (Calva, 2004). The Mexican gross domestic product (GDP) showed a sustained growth after 1995 including a growth of 381% between 1980 and 1998 (Figure 1).

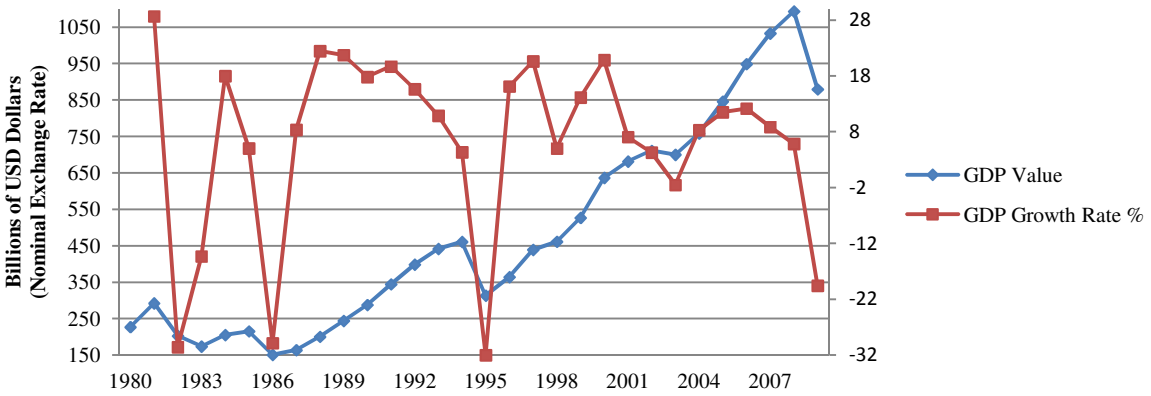


Figure 1. Mexico's GDP value and growth rate from 1980's to 2010; Source: UNCTAD, UNCTADstat

The trade liberalization process in Mexico happened in three main stages; economic reforms initiated in the early 1980's by recommendations of the International Monetary Fund (IMF) and the World Bank, Mexico's adherence to the General Agreement on Tariffs and Trade (GATT) in 1986, and the North America Free Trade Agreement (NAFTA) that

[1] Graduate School of Management, Ritsumeikan Asia Pacific University, Beppu city, Japan e-mail: behrooz@apu.ac.jp

came into effect in 1994. The implementation of policies and institutions to stimulate trade was a key factor in the attraction and allocation of Foreign Direct Investment (FDI) in the Mexican industry and service sectors as illustrated in Table 1. The NAFTA stimulated capital inflows to the industrial sector, which also contributed to the increase in the Mexican industrial manufacturing activity.

Table 1 Mexico's foreign direct investment distribution by economic sector

Definition/Year	1980	1985	1990	1995	2000	2002	2004	2005	2006	2007	2008	2009	2010
Industry	79.2	67.4	32.0	58.7	57.4	41.2	59.6	47.2	49.9	45.5	30.0	36.1	59.7
Services	8.1	25.2	59.2	28.3	27.6	49.6	34.1	40.0	44.7	43.2	44.7	49.9	22.8
Retailing	7.3	6.3	4.6	12.1	13.6	7.8	5.5	12.0	3.3	5.2	7.1	9.0	14.2
Extraction	5.3	1.0	2.5	0.9	0.9	1.1	0.8	0.8	2.0	5.6	18	4.9	3.3
Agriculture and livestock	0.1	0.0	1.6	0.1	0.5	0.4	0.1	0.0	0.1	0.5	0.1	0.1	0.0
Total Percentage	100	100	100	100	100	100	100	100	100	100	100	100	100

Source: Vazquez Galan (2009) and Mexican Economy Bureau

Figure 2 demonstrates the trends in Mexico's GDP and its growth rate. Although the contribution of the manufacturing industry to the Mexican GDP remained the same, the production value and total exports were not stagnant and there was a sustainable growth in all sectors of the Mexican economy in the last two decades. Especially since the intervention of the IMF and WB in the Mexican macro-policies in early 1980's, the Mexican industry and international trade policies supported the industrial manufacturing exports (CEFP, 2004).

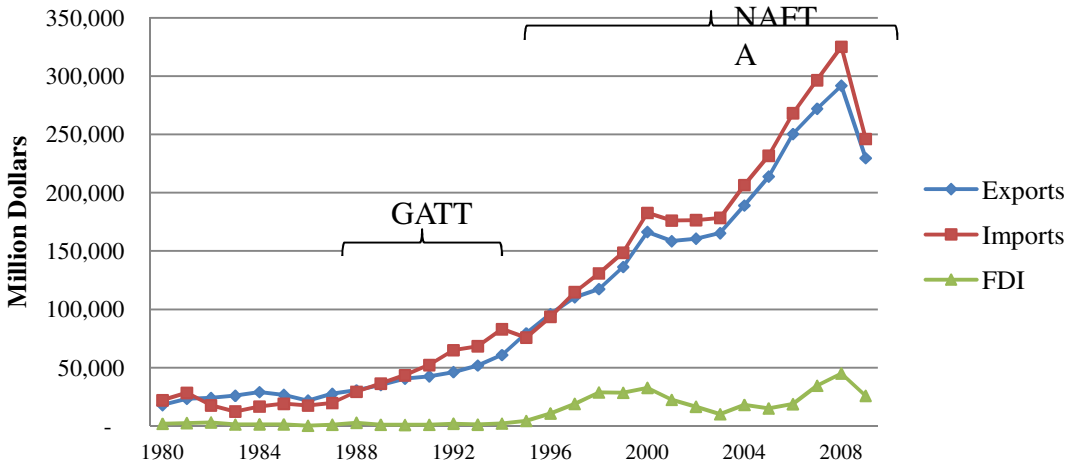


Figure 1. Mexican import, export and FDI (in US Dollars at current prices and current exchange rates in millions); Source: UNCTAD, UNCTADstat

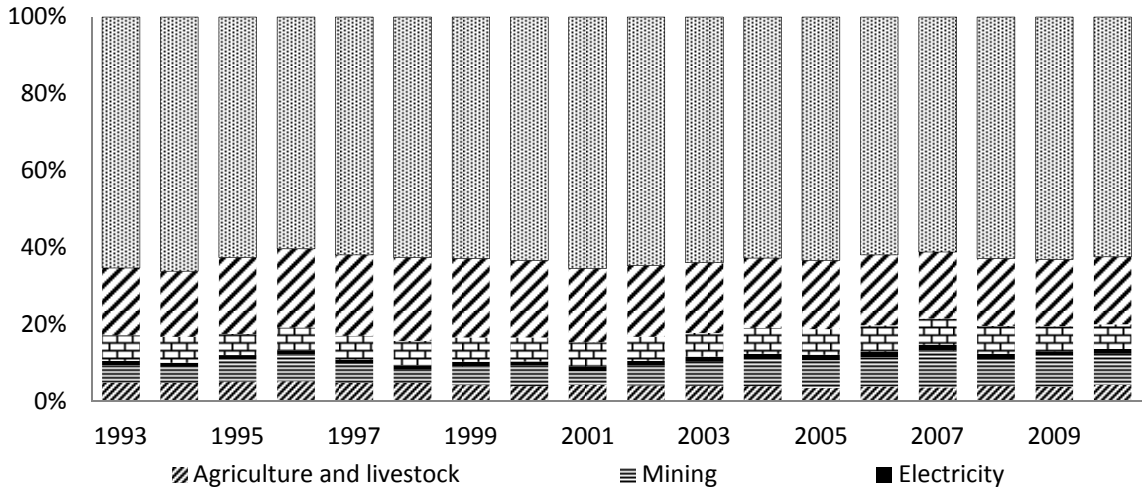


Figure 2. Contribution of various sectors to the Mexican GDP; Source: INEGI

The Mexican manufacturing industry's contribution to the total non-oil exports increased from around 50% in the 1980's to above 90% in the last decade. The manufacturing industry plays an active role in Mexican exports, though its contribution to the total GDP has remained the same at around 18% since 1993 (Figure 3). Nevertheless, the manufacturing industry is considered the main contributor to economic growth and industrial development in Mexico (CEFP, 2004). As such, it is important to analyze the evolution of the manufacturing industry to determine its current level of specialization. The question is whether all the sub-sectors are performing well or if this continuous growth relies on only a few sub-sectors.

This research aims to examine all the sub-sectors and determine which manufacturing industries should Mexico focus on, whether the high-tech industries are showing progress in Mexico, and what changes in industrial manufacturing strategy may enhance Mexico's growth. This is done by measuring the technological progress through an analysis of the learning rates in each sub-sector, and by identifying the different levels of knowledge accumulation among them.

Several studies have previously demonstrated that an increased efficiency in processes may result from an increased familiarity with the routine of such processes; as a process is recurred in t_1 (t for time), there is an accumulation of knowledge that leads to a better performance of that process in t_{1+n}. This accumulation or acquisition of knowledge has been called "learning" (Arrow, 1962). Learning by doing refers to the process by which production costs are reduced as experience is accumulated over time (Hornstein & Peled, 1997); knowledge accumulation can be captured by a learning curve that shows the relationship of outputs and inputs. Arrow (1962) in his seminal work "economic implications of learning by doing" concluded that learning occurs when attempts are made to solve a problem.

The initial observation of the learning curve is attributed to T.P. Wright in 1936 during research on factors affecting the cost of airplanes; he found that learning contributes to the reduction in labor hours spent in the production of an airframe. In 1954, F.J. Andress conducted a research on the learning curve as a production tool; he focused on the role of direct labor in the learning system (Adler & Clark, 1991). Baloff (1966) undertook a research to broaden the application of the learning curve in capital-intensive industries, introduced a learning model for a variety of industries, and reviewed some empirical results (Baloff, 1966). Baloff and Kenelly (1967) argued that a learning model should be taken into consideration when estimating the productivity path of a start-up process.

A learning curve can be defined as a function which relates performance to experience (Jackson, 1998). Learning curves demonstrate that an improvement in the output performance of any process caused by knowledge accumulation

follows an *S* shape over time; it may be concluded that the learning effects are bound at some point in t_n, or learning eventually ceases (Hornstein & Peled, 1997). Five main characteristics of the learning curves were described in Hornstein and Peled's research, as the "stylized facts" of learning-by-doing: learning has a significant effect on efficiency; learning increases as a function of production volume; the scope of learning is bounded; there is an important component to learning which is firm-specific; and the experience effect on the development of new goods is more modest than its impact on efficiency.

Several papers have documented the evolution of the learning curve models, from univariate models to more complex multivariate models. Conventional univariate learning curves express a dependent variable (e.g. total production) in terms of a particular independent variable such as labor cost, investment, etc. According to Badiru (1992) the most famous univariate models include the log-linear model, the S-curve, the Stanford-B model, DeJong's learning formula, Levy's adaptation formula, Glover's learning formula, Pegel's exponential function, Knecht's upturn model, Yelle's product model, and multiplicative power model.

The experience curve phenomenon, developed by the Boston Consulting Group (BCG, 1960-1970's), looks at the total cost and widening of the inputs to the learning system. The experience curve, contrary to the learning curve, takes into consideration all possible inputs in a production process to find a relationship between one of many substitutable inputs and the cumulative output (OECD, experience curves for energy technology policy, 2000). The BCG may be applied to the total cost of a product, including different learning means such as research and development, economies of scale, and other cost factors. This concept was applied not only within a single company or process, but also to entire industries (Sark Van, 2008).

Technological capability and technological progress

Technological capability is the ability of an organization to utilize a variety of available knowledge and skills in order to acquire, assimilate, use, adapt, change and create technology (Ernst, Ganiatos, & Mytelka, 1998). Economies or organizations acquire knowledge to build up and accumulate their own technological capabilities by engaging in a process of technological learning. This technological learning is the transformation of knowledge acquired by individuals into organizational learning (Figueiredo, 2001).

Technological change or technical progress brings about production efficiencies which have a direct impact on productivity growth; several studies have concluded that technological change is the most important factor in aggregate economic growth (Ruttan, 2001). In order to understand technological change, as described by Link *et al* (1987), technology may be conceptualized as the physical representation of knowledge. The economic and social impacts of new knowledge are realized only with its adoption and utilization (Ruttan, 2001).

It is possible to evaluate or estimate the effect of technological change on production in terms of changes in the amount of production factors, with capital and labor being the most important. Technological change alters the input mix for a fixed level of output; a very simple scheme is summarized in Table 2 (Link, Kaufer, & Mokyr, 1987).

Table 2 Classification scheme of technological change

Neutral technological change	**Labor-saving technological change**	**Capital-saving technological change**
K/L ratio remains unchanged	K/Q ratio remains unchanged	L/Q ratio remains unchanged
Marginal rate of substitution among factors remains the same	K/L ratio increases Labor increases	K/L ratio decreases Capital increases

K: Capital, L: Labor and Q: Output; Source: Ruttan (2001)

Technological progress enables organizations to achieve a higher output with the same amount of limited resources (labor and capital for instance). Innovations are labor-saving, capital-saving or neutral depending on whether capital's share in output increases, decreases or remains unchanged, respectively (Ramanathan, 1982). Several studies have calculated the technological learning rates; among them, Pramongkit *et al* (2000) calculated the technological learning rates for the Thai industry using a linear model; Karaoz and Albeni (2005) examined the Turkish industry, and Asgari and Yen (2009) examined the manufacturing and service industry in Malaysia, both using a cubic model.

The technological learning coefficient or learning elasticity, denoted in this paper as "α", is required for computing the learning level or progress ratio. This learning level or progress ratio describes the effect of learning every time production doubles over the unit production costs, or as described by Sark Van (2008) it is the relative amount of cost reduction per each doubling of the cumulative output.

According to Belkaoui (1986) the average time model of the log-linear model is represented by $Y = a X^{-\alpha}$ …..... (1) where: Y is the average cumulative labor hours, labor dollars, material costs of X number of units, or in this paper, the production value; a is the theoretical or actual value of the first unit; X is the cumulative number of units produced, or in this paper the cumulative production value; and α is the slope coefficient, exponent or learning index.

According to Belkaoui (1986) if production doubles then the formula changes into: $Y^* = a (2X)^{-\alpha}$ ..... (2) Given the fact that learning takes place per doubling of production, the progress ratio or learning level is denoted as d (in this paper) or PR (as in Asgari and Yen, 2009): $d = Y^*/ Y = a (2X)^{-\alpha} / a X^{-\alpha}$ or $d = 2^{-\alpha}$ ……..... (3)

To measure the level of learning, the Progress Ratio (d) is estimated from the equation $d = 2^{-\alpha}$, given an already calculated measure for learning elasticity.

The interpretation of the progress ratio value is summarized in Table 3. A learning level below 1 indicates that learning is still taking place; therefore unit production cost decreases and efficiency increases, as total production increases. A learning level above 1 indicates forgetting; therefore unit production cost increases and efficiency decreases, as total production increases. A learning level equal to 1 indicates that there is no improvement or worsening, implying that productivity does not change and remains constant over time (Karaoz & Albeni, 2005).

Table 3 The interpretation of the progress ratio value

d < 1	**d = 1**	**d > 1**
Learning stage	No learning, no forgetting	Forgetting stage
Unit production cost decreases as output increases	Unit production cost remains the same as output increases	Unit production cost increases as output increases
Efficiency increases	No change in efficiency	Efficiency decreases
Productivity increases	No change in productivity	Productivity decreases

The learning elasticity is traditionally considered as a constant in the linear model; therefore, the progress ratio results in a unique single value. However as postulated by Arrow (1962) and some other scholars, the learning process is cumulative and its effects are enhanced as production continues over time (Asgari & Yen, 2009). An S-curve model, as previously described, portrays the actual trend of the learning process better. Badiru (1992) proposed a cubic model that was later tested and supported by Pramongkit *et al* (2000), and Asgari and Yen (2009). This dynamic cubic model treats learning elasticity as a variable; therefore, the progress ratio results in variable values over the period under analysis. We use both the linear model and cubic model in order to find the model that best fits the data for the Mexican manufacturing industry. Our research is focused on two main hypotheses about the development of a manufacturing industry which over time moves from labor-intensive to capital-intensive. For the analysis of the Mexican manufacturing industry, the hypotheses are:

a) If the Mexican manufacturing industry follows the same trend that currently developed countries did in the past, the Mexican labor-intensive sub-sectors (low-tech) should show a learning level (d) equal to or above 1.
b) The participation of low-tech sub-sectors in the total manufacturing production should be declining, and those in mid-low-tech and high-tech industries should be increasing.

Methodology

The data for the Mexican manufacturing industry sub-sectors was collected at 3-digits level from the Mexican Statistics, Geography and Information Bureau (INEGI). Prior to 2003, the Mexican sub-sector classification was grouped in 9 sub-sectors: 1) Food, beverages and tobacco products; 2) Textiles, wearing apparel, fur, leather, leather products and footwear; 3) Wood products including furniture; 4) Paper and paper products, printing and publishing; 5) Chemicals, petroleum products, rubber and plastics products; 6) Non-metallic mineral products; 7) Basic metals; 8) Fabricated metal products, machinery and equipment, medical, precision and optical instruments; and 9) Other manufacturing industries. Given the fact that the old classification cannot be re-organized following the ISIC classification, our research followed the original classification and re-grouped the 21-sub-sectors into 9 sub-sectors for data collected from 2003 to 2008.

The monetary data was converted into US$ based on the annual average exchange rates published by the Mexican Bank, and deflated based on 2005-CPI indices published by the Organization for Economic Cooperation and Development (OECD) to reflect all data at constant prices of US$ in 2005. Sub-sectors were classified according to the "classification of manufacturing industries based on technology" (technological intensities) published by the OECD as shown in Table 4.

Table 4 The Mexican sub-sector classification of "technological intensity"

SUB-SECTOR	Short description	Technological intensity
Food, beverages and tobacco products	Food	Low tech
Textiles, wearing apparel, fur, leather, leather products and footwear	Textile	Low tech
Wood products including furniture	Wood	Low tech
Paper and paper products, printing and publishing	Paper	Low tech
Chemicals, petroleum products, rubber and plastics products	Chemicals	Mid-high tech
Non-metallic mineral products	Non-metallic	Mid-low tech
Basic metals	Basic metals	Mid-low tech
Fabricated metal products, machinery and equipment, medical, precision and optical instruments	Machinery	High tech
Other manufacturing industries	Others	Low tech

The traditional linear model construction:

A linear model is used to calculate the learning elasticity (α) needed for estimation of the progress ratio or learning level (d) given the equation $d= 2^{-\alpha}$ ……..……...… (3) which indicates that every doubling of total production reduces unit production costs by a factor of $2^{-\alpha}$.

The most common linear model is $c_t= c_1X_t^{-\alpha}$ or its equivalent in a logarithmic form $\ln c_t= \ln c_1- \alpha \ln X_t$……... (4) It states that the unit production cost in time *t* is a function of the cumulative production powered to the learning elasticity, multiplied by the unit production cost at time 1.

In the Cobb-Douglas production function $Q_t=A_tL_t^{\beta}K_t^{\Theta}$ or its equivalent logarithmic form

$\ln Q_t= \ln A_t + \beta \ln L_t+ \Theta \ln K_t$ ……..……..….. (5)

Q is the production value added, A is the total factor productivity, L is the labor cost, K the capital, and β and Θ are the elasticities for labor and capital, respectively.

Learning and technology spillovers of the technology stock enhance the total factor productivity which in turn contributes to production increases, and leads to higher cumulative production outputs that stimulate learning (Watanabe & Asgari, 2004). The level or stock of technology, A_t in this particular case, can be written as follows: $A_t = H X_t^{\alpha}$ or its logarithmic equivalent $\ln A_t = \ln H + \alpha \ln X_t$ ……..…….……..…… (6)

It states that the level of technology at time *t* is a function of the cumulative production raised to the power of the learning elasticity, and multiplied by a constant H.

With the logarithmic forms of equation 5 and 6 combined, the new equation is:

$\ln Q_t = \ln H + \alpha \ln X_t + \beta \ln L_t + \Theta \ln K_t$ ……..……..…… (7)

Expressing labor in terms of the production value added (labor ratio):

$\ln (L/Q)_t = -\ln H - \alpha \ln X_t + (1-\beta) \ln L_t - \Theta \ln K_t$ ……..……..... (8)

Because capital may be expressed as a function of labor, with the expansion of output the relationship between capital and labor can be expressed as $K_t = \mu L_t^{\lambda}$ or its equivalent logarithmic form $\ln K_t = \ln \mu + \lambda \ln L_t$.)……..… (9)

Here λ expresses the type of technological bias as production expands, and μ is a constant; when λ is greater than 1, capital intensity as measured by capital-labor ratio increases as output increases (Pramongkit, Shawyun, & Sirinaovakul, 2000

Substituting $\ln K_t = \ln \mu + \lambda \ln L_t$ in equation $\ln (L/Q)_t = -\ln H - \alpha \ln X_t + (1-\beta) \ln L_t - \Theta \ln K_t$:

$\ln (L/Q)_t = -\ln H - \Theta \ln \mu - \alpha \ln X_t + (1-\beta-\Theta\lambda) \ln L_t$ ……..……...…….. (10)

If we consider $\sigma_1 = -\ln H - \Theta \ln \mu$, $\sigma_2 = -\alpha$ and $\sigma_3 = 1-\beta-\Theta\lambda$ then the final equation is:

$\ln (L/Q)_t = \sigma_1 + \sigma_1 \ln X_t + \sigma_3 \ln L_t$ ……..……..…..... (11)

Construction of the cubic model

A cubic model is used to calculate the learning elasticity (α) which is required to estimate the progress ratio or learning level (d) given the equation $d = 2^{-\alpha}$……....……....……..... (3)

The dynamic cubic model proposed by Belkaoui (1986) and Badiru (1992), and later tested by Asgari and Yen (2009) is: $\ln c_t = \ln c_1 + B \ln X_t + C (\ln X_t)^2 + D (\ln X_t)^3$ ..……..... (12)

where c_t is the unit production cost in time *t*; c_1 is the unit production cost at the beginning of the period; and X_t is the cumulative production at time *t*. This function states that per unit cost of output at time *t* is a function of cumulative production (Karaoz & Albeni, 2005).

The most common linear model is $c_t = c_1 X_t^{-\alpha}$ or $\ln c_t = \ln c_1 - \alpha \ln X_t$……..…..…….. (13)

$Q_t = A_t L_t^{\beta} K_t^{\Theta}$ or $\ln Q_t = \ln A_t + \beta \ln L_t + \Theta \ln K_t$ ……..……..…… (14)

is the Cobb-Douglas production function.

The level or stock of technology can be written as follows: $A_t = H X_t^{\alpha}$ or its logarithmic equivalent

$\ln A_t = \ln H + \alpha \ln X_t$. ……..……... (15)

From equation 13 we have that $X_t^{\alpha} = c_1/c_t$ and after combining 13 and 15 we have $A_t = H\, c_1/c_t$ or its logarithmic form $\ln A_t = \ln H + \ln c_1/c_t$. ..…….…….... (16)

Transforming equation 12 to represent the ratio between the unit production cost in time 1 and the unit production cost in time *t*, $\ln c_1/c_t = -[B \ln X_t + C(\ln X_t)^2 + D(\ln X_t)^3]$ ……..…(17)

After replacing equation 16 into equation 17, the resulting equation is:

$\ln A_t = \ln H - B \ln X_t - C(\ln X_t)^2 - D(\ln X_t)^3$……...……..... (18)

Capital may be expressed as a function of Labor, $K_t = \mu L_t^{\lambda}$ or its equivalent logarithmic form

$\ln K_t = \ln \mu + \lambda \ln L_t$. ……..……..……. (19)

Equation 18 is inserted into the Cobb-Douglas production function described in equation 16, resulting in the equation $\ln Q_t = \ln H - B\ln X_t - C(\ln X_t)^2 - D(\ln X_t)^3 + \beta \ln L_t + \Theta \ln K_t$ …….....…….… (20)

Replacing equation 19 into equation 20, and expressing labor in terms of the production value added $\ln(L/Q)_t = -\ln H - \Theta\ln\mu + B\ln X_t + C(\ln X_t)^2 + D(\ln X_t)^3 + (1-\beta-\Theta\lambda)\ln L_t$ ……..…..… (21)

If we consider $\sigma_1 = -\ln H - \Theta\ln\mu$ and $\sigma_2 = 1-\beta-\Theta\lambda$ then the final equation is:

$$\mathbf{\ln(L/Q)_t = \sigma_1 + B\ln X_t + C(\ln X_t)^2 + D(\ln X_t)^3 + \sigma_2 \ln L_t} \quad \text{……} \quad (22)$$

Through regression analysis, the A, B, C and D coefficients are calculated and then used to compute the value of learning elasticity α, and finally the progress ratio.

Estimation of the learning elasticity

According to Karaoz and Albeni (2005) the first derivative of equation, $\ln(L/Q)_t = \sigma_1 + B\ln X_t + C(\ln X_t)^2 + D(\ln X_t)^3 + \sigma_2 \ln L_t$ gives the learning elasticity.

$\ln c_t = \ln(L/Q)_t$ where unit production cost at time *t* is a function of the difference between unit labor cost and the unit value added, then $\ln c_t = \sigma_1 + B\ln X_t + C(\ln X_t)^2 + D(\ln X_t)^3 + \sigma_2 \ln L_t$ or $c_t = e^{\sigma 1 + B\ln Xt + C(\ln Xt)2 + D(\ln Xt)3 + \sigma 2\, \ln Lt}$ ……..... (23)

And after applying derivation:

$\partial c_t / \partial X_t = e^{\sigma 1 + B\ln Xt + C(\ln Xt)2 + D(\ln Xt)3 + \sigma 2\, \ln Lt} [B/X_t + (2C/X_t)\ln X_t + (3D/X_t)\ln X_t^2]$ ……..…… (24)

Substituting c_t with $c_t = e^{\sigma 1 + B\ln Xt + C(\ln Xt)2 + D(\ln Xt)3 + \sigma 2\, \ln Lt}$ $\partial c_t / \partial X_t = c_t / X_t [B + 2C\ln X_t + 3D\ln X_t^2]$ ……...… (25)

And the learning elasticity $-\boldsymbol{\alpha}$ is: $(\partial c_t / \partial X_t)(X_t / c_t) = B + 2C\ln X_t + 3D\ln X_t^2$ ……..……...…… (26)

The equation to calculate the learning elasticity is $\boldsymbol{\alpha = -[B + 2C\ln X_t + 3D(\ln X_t)^2]}$

Model Computation

a) The linear model computation

The model $\mathbf{\ln(L/Q)_t = \sigma_1 - \sigma_2 \ln X_t + \sigma_3 \ln L_t}$ was computed and through regression analysis the coefficients (σ_1, σ_2 and σ_3) were obtained (Table 5), and α values were used to estimate the progress ratio indices for every single sub-sector in the Mexican manufacturing industry, as shown in Table 6.

Table 5 Linear model regression results and progress ratio value

Manufacturing industry	R^2	F	σ_1	σ_2	σ_3	d
Food	0.11	1.1	-4.64	0.09	0.08	1.061
Textile	0.51	9.24	-3.15	0.13	-0.02	1.096
Wood	0.89	70.73	-0.66	0.12	-0.19	1.083
Paper	0.81	37.68	-7.97	0.19	0.21	1.144
Chemicals	0.40	5.88	-7.79	0.10	0.29	1.068
Non-Metallic	0.81	38.70	-6.25	0.08	0.21	1.060
Basic Metals	0.60	13.74	-10.31	0.18	0.35	1.136
Machinery	0.95	166.98	-8.63	0.09	0.34	1.064
Others	0.86	53.85	-3.80	0.19	-0.06	1.142

b) The cubic model computation

The cubic model: $\mathbf{\ln(L/Q)_t = \sigma_1 + B\ln X_t + C(\ln X_t)^2 + D(\ln X_t)^3 + \sigma_2 \ln L_t}$ was computed and through regression analysis the coefficients (σ_1, B, C, D and σ_2) were obtained (Table 7); these coefficients were then used to estimate the learning elasticity according to the formula $\alpha = -[B + 2C\ln X_t + 3D\ln X_t^2]$. The learning level (progress ratio) indices were calculated for every single sub-sector in the Mexican manufacturing industry as shown in Table 8.

Table 6 Progress ratio estimates by sub-sector (1988-2008)

Sub-Sector	Progress Ratio	Rank
Non Metallic	1.060	1
Food	1.061	2
Machinery	1.064	3
Chemicals	1.068	4
Wood	1.083	5
Textile	1.096	6
Basic Metals	1.136	7
Others	1.142	8
Paper	1.144	9
Total Mexican Manufacturing Industry	1.061	

Table 7 Cubic model regression results

Manufacturing Industry	R^2	F	σ_1	B	C	D	σ_2
Food	0.31	1.79	2034.67	-299.79	14.71	-0.24	-0.05
Textile	0.57	5.25	-2338.33	362.17	-18.71	0.32	0.05
Wood	0.89	31.50	-315.37	51.58	-2.80	0.05	-0.18
Paper	0.81	17.16	-24.22	3.66	-0.23	0.01	0.24
Chemicals	0.86	25.38	4115.65	-617.25	30.81	-0.51	0.07
Non-Metallic	0.91	41.39	984.53	-160.73	8.71	-0.16	0.09
Basic Metals	0.66	7.73	1549.23	-244.92	12.85	-0.22	0.22
Machinery	0.95	77.04	-378.64	54.45	-2.66	0.04	0.37
Others	0.86	24.29	-105.86	16.75	-0.89	0.02	-0.06

Table 8 Progress ratio estimates by manufacturing sub-sector

Year	Total MFG	Food	Textile	Wood	Paper	Chemicals	Non Metallic	Basic Metals	Machinery	Others
1988	0.83	0.80	1.60	1.14	1.09	0.67	1.03	0.94	1.12	1.23
1989	1.20	1.17	0.99	1.06	1.13	1.37	1.18	1.21	1.04	1.15
1990	1.21	1.20	0.97	1.06	1.15	1.41	1.13	1.19	1.04	1.13
1991	1.12	1.11	1.06	1.08	1.17	1.25	1.03	1.12	1.06	1.12
1992	1.01	1.00	1.19	1.10	1.19	1.07	0.93	1.05	1.08	1.12
1993	0.91	0.89	1.35	1.12	1.21	0.89	0.84	0.98	1.10	1.12
1994	0.81	0.79	1.53	1.14	1.22	0.74	0.76	0.91	1.13	1.12
1995	0.75	0.75	1.65	1.16	1.23	0.66	0.72	0.87	1.15	1.12
1996	0.72	0.72	1.69	1.16	1.23	0.61	0.71	0.83	1.16	1.12
1997	0.70	0.70	1.74	1.16	1.23	0.57	0.69	0.79	1.16	1.12
1998	0.68	0.68	1.77	1.16	1.24	0.54	0.67	0.76	1.17	1.12
1999	0.66	0.66	1.81	1.16	1.24	0.51	0.66	0.74	1.18	1.12
2000	0.64	0.65	1.84	1.16	1.24	0.48	0.65	0.71	1.19	1.12
2001	0.62	0.63	1.87	1.16	1.24	0.45	0.63	0.70	1.20	1.12
2002	0.61	0.61	1.90	1.17	1.25	0.43	0.62	0.68	1.20	1.12
2003	0.59	0.60	1.93	1.17	1.25	0.39	0.61	0.66	1.21	1.12
2004	0.57	0.58	1.96	1.17	1.25	0.35	0.59	0.64	1.22	1.12
2005	0.55	0.57	1.99	1.17	1.25	0.31	0.58	0.62	1.22	1.12
2006	0.53	0.55	2.03	1.17	1.25	0.27	0.57	0.60	1.23	1.12
2007	0.51	0.54	2.06	1.17	1.26	0.24	0.55	0.57	1.24	1.12
2008	0.49	0.52	2.09	1.18	1.26	0.21	0.54	0.55	1.25	1.12

Results and Discussion

Table 9 summarizes the progress ratio average values before and after the NAFTA, and highlights the impact of NAFTA on the different manufacturing subsectors. The overall learning level performance of the manufacturing industry was stagnant from 1988 to 1994[2], indicating that the industry did not experience any productivity gain during this period. NAFTA stimulated technological change in the industry, with an average overall learning level of 0.62 from 1995 to 2008, which indicates that productivity levels had remarkable improvements after new policies were implemented under the NAFTA agreement.

Table 9 Average progress ratio values before and after NAFTA

	total MFG	food	textile	wood	paper	chemicals	non metallic	basic metal	machinery
Before NAFTA	1.01	1.00	1.24	1.10	1.17	1.06	0.98	1.06	1.08
After NAFTA	0.62	0.63	1.88	1.17	1.24	0.43	0.63	0.69	1.20
21 Years	0.75	0.75	1.67	1.14	1.22	0.64	0.75	0.81	1.16

In the analysis of 1998-2008 data, the linear model indicates that all Mexican subsectors were in a forgetting stage, but the cubic model before and after NAFTA shows that almost all subsectors were forgetting before NAFTA with the exception of the non-metallic industry; the NAFTA had a positive impact on the food, chemicals, non-metallic and basic metals industries as observed in Table 9, but a negative impact on the textile, wood, paper (labor intensive subsectors), and machinery industry. The chemical industry benefited the most during the NAFTA period while the textile industry shows the worst performance.

The expected results for capital intensive industries were progress ratio values below 1. It is interesting, however, that the estimated values depicted in Figure 4 show the "food industry" in a learning stage although this industry is a low-tech or labor intensive industry.

The food industry suffered productivity issues during 1989, 1990 and 1991; but the unit production cost increase was stabilized in 1992 (progress ratio d= 1.0) and from 1993 onward the food industry exhibited a sustained decrease in the unit production cost per doubled production, culminating in a 51% decrease in 2008. It can be inferred that the food industry experienced innovation activities and technological assimilation that contributed to its outstanding performance between 1994 and 2008.

The food industry is the only low-tech sub-sector that is still accumulating knowledge leading to a more competitive industry, but its contribution to the total manufacturing industry in terms of production value decreased from 24.50% to 21.85% during the period of analysis as summarized in Table 10.

The chemical industry classified as mid-high tech based on its technological intensity, had the most remarkable performance in terms of technological change by the estimated progress ratio values shown in Figure 5. The industry had productivity issues from 1989 to 1992 with 41% increase in its unit production cost per doubled production, in 1991. This tendency of the unit production cost increase was reversed from 1994, and the industry achieved around 50% unit production cost reduction between 1998 and 2001.

[2] Although NAFTA came into effect on January 1st, 1994, the analysis considers 1994 as before the NAFTA period because the impact on the industry cannot be observed until at least a year has passed.

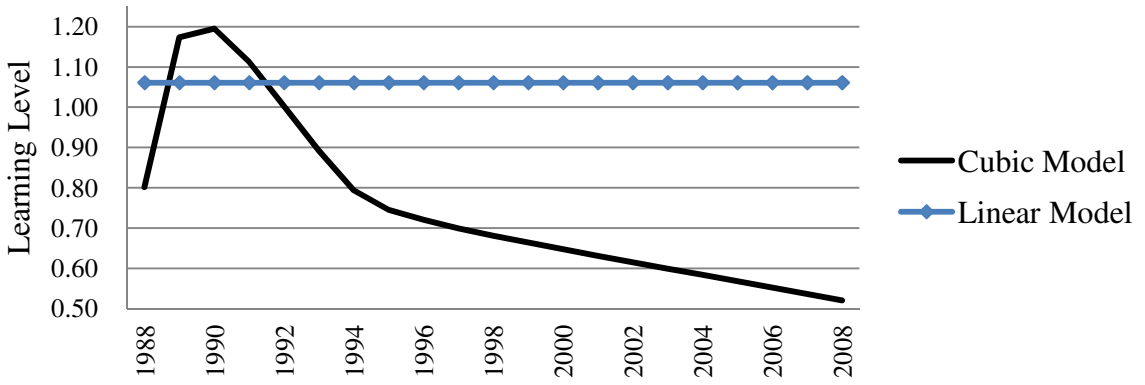


Figure 3. Progress ratio values for the food industry (low-tech).

The chemical industry continued with its learning trend in the last decade towards an outstanding learning level of 0.21 in 2008. This industry benefited the most during NAFTA with an average progress ratio of 0.43 which indicates that the unit production cost in average decreased 57% per doubled production. The chemical industry's contribution to the total manufacturing value increased from 18.20% in 1988 to 32.85% in 2008 as shown in Table 10, an exceptional growth level in line with its observed learning performance during this period.

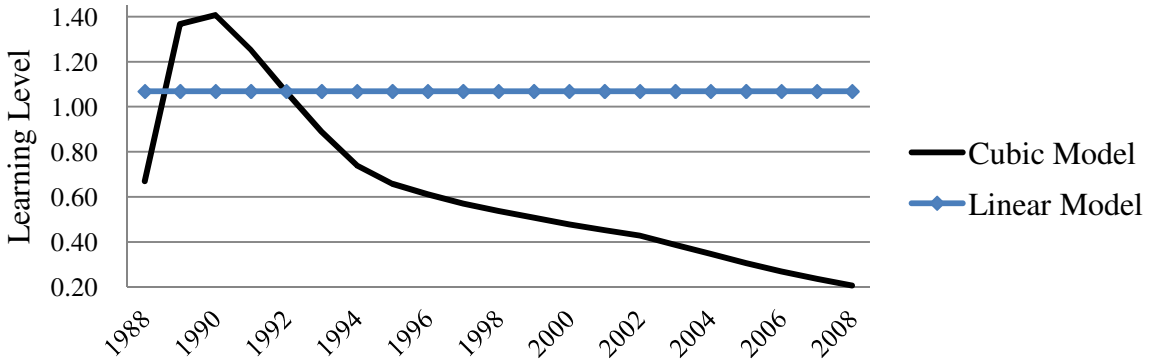


Figure 4. Progress ratio values for the chemical industry (mid-high tech)

The non-metallic and basic metal industries, classified as mid-low tech, show a similar trend in the period under analysis. Both industries, as shown in Figure 6 and Figure 7, overcame their productivity problems early in the 1990's and achieved good learning levels from 1993 onward. The non-metallic industry achieved better improvement levels from 1995 to 2002 compared with the basic metals industry. In 1995, the unit production cost in the non-metallic industry decreased by 28% per doubled production, while in the basic metal industry this cost decreased by only 13%.

In 2002, however, the unit production cost decreased by 38% per doubled production in the non-metallic industry, while in the basic metal this cost decreased by only 32%. These observations indicate that stronger innovation activities were carried out in the non-metallic industry between 1993 and 1999 versus the basic metal industry, but from 2000 to 2005 the basic metal industry carried out stronger innovation activities (Figure 7) than the non-metallic industry. In year 2008 both industries showed similar progress ratio values, 0.54 for the non-metallic industry and 0.55 for the basic

metals. Both industries have achieved outstanding learning levels, reaching around 45% unit production cost decreases per doubled production in 2008.

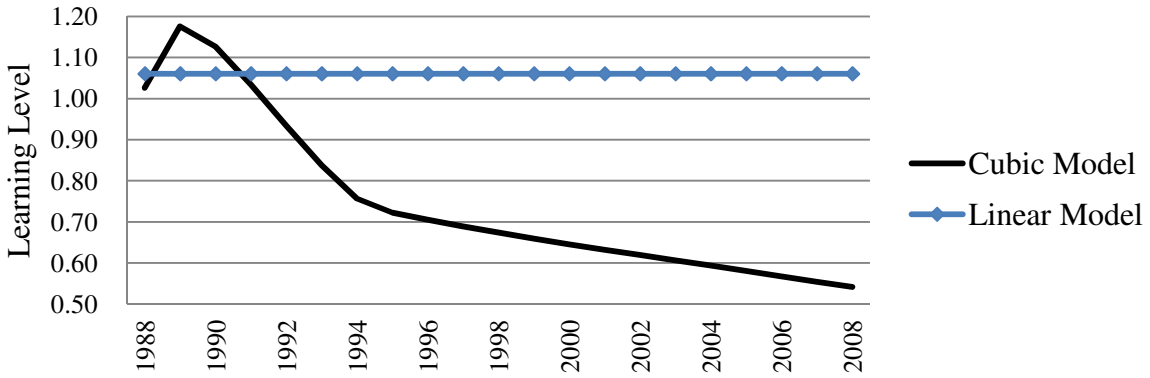


Figure 5. Progress ratio values for the non-metallic industry (mid-low tech)

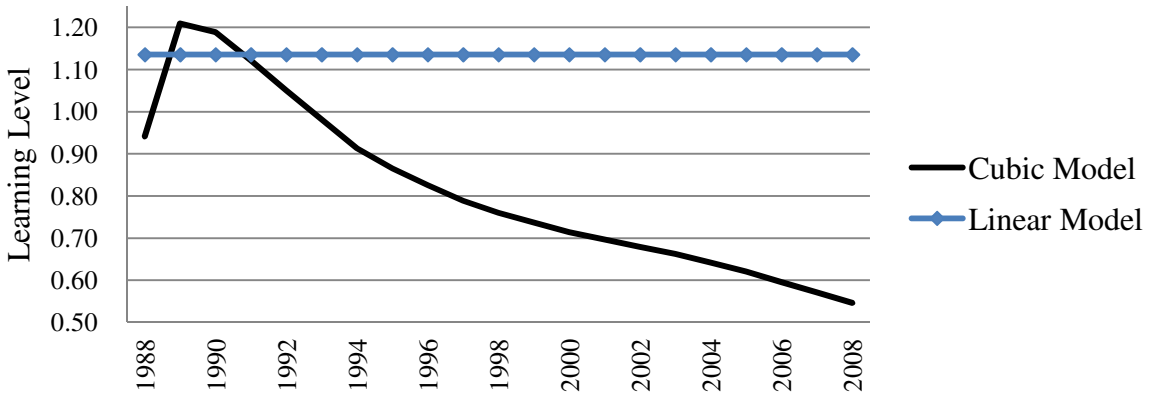


Figure 6. Progress ratio values for the basic metals industry (mid-low tech)

Subsectors in forgetting situations

The expected results for labor-intensive industries, classified as low-tech according to their technological intensity were progress ratio values equal or above 1 (d). Although the calculated values portrayed in Figure 8 show the machinery industry in a forgetting stage, this industry is a high-tech capital intensive industry. The machinery industry did not overcome its productivity problems during the period under analysis, showing a progress ratio of 1.15 in 1994, 1.20 in 2002 and 1.25 in 2008. Unit production costs increased 15% in 1994, 20% in 2002 and 25% in 2008 per doubled production.

The data shown in Table 2 indicates that the machinery industry was actually expanding from 1988 until 2002, but since 2003 the industry has contracted. Because the machinery industry is a high-tech industry, its worsening situation in the learning level reveals a concern for the future of the manufacturing industry in Mexico (Figure 8). In the natural course of development in the manufacturing industry a change is expected in manufacturing specialization moving from labor intensive to capital intensive industries; in other words, moving from low-tech to high-tech industries.

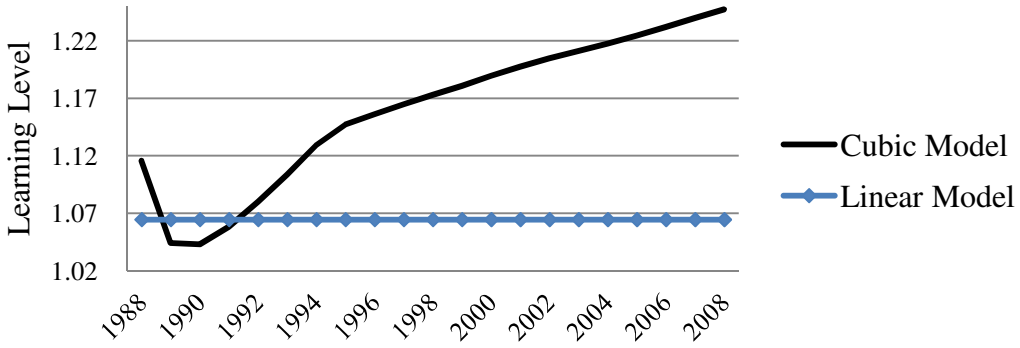


Figure 7. Progress ratio values for the machinery industry (high-tech)

The textile industry has the worst performance among all the Mexican manufacturing sub-sectors (Figure 9). After 1991 and before NAFTA the textile industry suffered serious productivity issues, and the observed progress ratios moved from 1.06 in 1991 to 1.53 in 1994 indicating that the unit production cost increased from 6% to 53% between the mentioned years.

The calculated progress ratio values indicate a chronic situation in the industry, reaching a deteriorated progress ratio of 2.09 in 2008. The textile industry is no longer competitive and no learning is taking place in this industry. NAFTA has not benefited this industry and instead has worsened its performance level. It can be deducted that no new technology has been acquired and implemented in the industry, no innovation activities have taken place, and almost no investment has reached the industry during the period of analysis 1988-2008.

This analysis supports several studies that indicate the textile manufacturing industry in Mexico is not competitive and that the industry has suffered from competitive markets such as China. The industry's contribution to the total manufacturing industry has decreased from 8.92% to 2.60% in 2008.

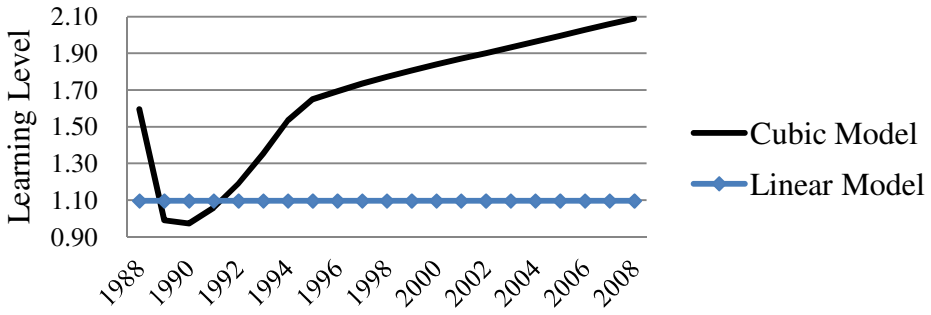


Figure 8. Progress ratio values for the textile industry (low-tech)

The wood industry which includes wood products and furniture, and the paper industry which captures paper, paper products, printing and publishing show an almost similar trend over the period of analysis as depicted in Figure 10 and Figure 11. The wood industry had some improvement in its forgetting level in 1989 and 1990, but after 1991 this situation is worsening though not as bad as the textile subsector.

The unit product cost shows an average increase of 17% per doubled production between 1995 and 2008. The industry's participation in the total production value in the manufacturing industry declined from 3.41% in 1998 to a poor level of 0.61 in 2008 as indicated in Table 10.

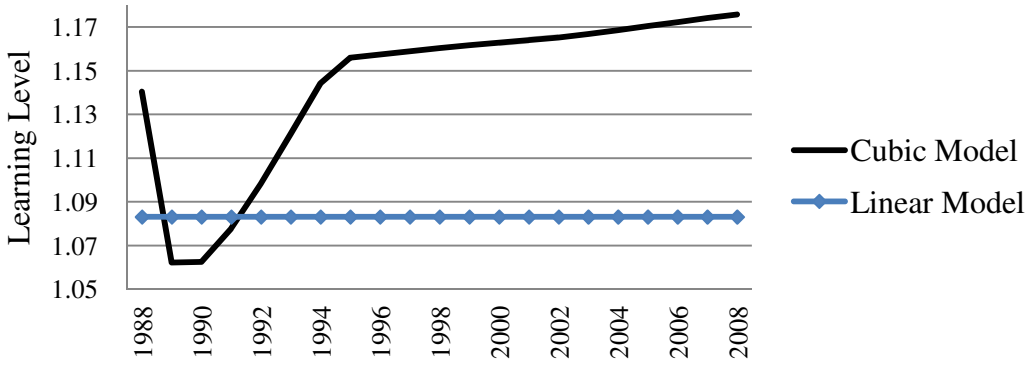


Figure 9. Progress ratio values for the wood industry (low-tech)

The paper industry shows a chronic forgetting level and is the only manufacturing industry that does not show any improvement in any year, but only a worsening level as time goes by. The industry's forgetting level is smaller than the textile industry, and its progress ratio level of 1.26 in 2008 indicates that the unit production cost would increase 26% per doubled production.

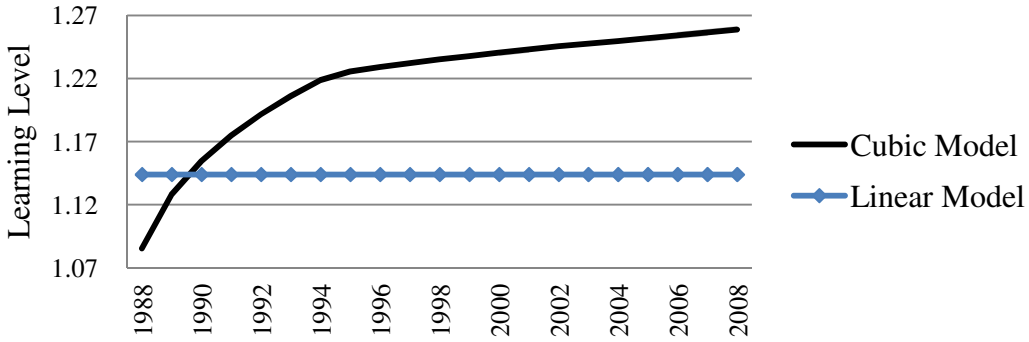


Figure 10. Progress ratio values for the paper industry (low-tech)

NAFTA has negatively impacted the industry and is not a competitive industry. The industry's contribution to the total manufacturing industry decreased from 5.43% in 1998 to 3.23% in 2008; however its current contribution to the whole industry is higher than the contribution of the textile and wood industry together (3.21%), as shown in Table 10.

Manufacturing subsectors by technological intensity

The different policies implemented under the NAFTA agreement have led to a re-structuring of the whole manufacturing industry as observed in Table 10 and Table 11. Labor intensive industries contribute less to the manufacturing industry, with the exception of the food industry, whereas capital intensive industries contribute more, with the exception of the machinery industry.

Table 10 Industry participation in the total manufacturing production value

Year	Chemical %	Machinery %	Food %	Basic Metals %	Non-Metallic %	Paper %	Textiles %	Wood %	Others %
1988	18.20	25.44	24.50	7.67	4.63	5.43	8.92	3.41	1.80
1989	17.22	26.44	24.83	7.20	4.44	5.42	8.87	3.47	2.12
1990	16.59	26.95	25.71	6.72	4.62	5.12	8.68	3.22	2.40
1991	15.48	28.28	27.01	5.52	4.88	4.89	8.54	3.12	2.27
1992	15.01	28.97	27.13	4.98	5.16	4.87	8.30	3.05	2.52
1993	14.80	28.50	27.85	4.82	5.48	4.76	8.22	3.05	2.51
1994	14.67	29.89	27.19	4.92	5.25	4.70	7.82	2.94	2.62
1995	14.90	33.75	24.17	5.94	4.00	4.54	7.46	2.44	2.80
1996	18.16	31.90	25.01	10.19	4.17	4.68	5.05	0.59	0.24
1997	17.88	33.47	23.71	10.29	4.16	4.49	5.12	0.62	0.25
1998	17.65	35.26	23.14	9.15	4.47	4.59	4.85	0.64	0.26
1999	17.43	35.73	23.61	8.18	4.70	4.78	4.66	0.65	0.26
2000	17.34	36.95	23.08	7.95	4.62	4.77	4.45	0.60	0.25
2001	17.68	36.21	24.91	6.90	4.63	4.71	4.16	0.57	0.24
2002	17.83	34.75	26.07	7.09	4.69	4.70	4.06	0.57	0.24
2003	29.79	27.34	22.99	6.29	4.56	3.83	3.79	0.80	0.62
2004	30.58	26.30	22.41	7.83	4.33	3.59	3.59	0.78	0.59
2005	32.01	26.12	21.92	7.51	4.19	3.57	3.34	0.75	0.58
2006	31.68	26.42	21.17	8.67	4.15	3.48	3.16	0.72	0.56
2007	31.27	26.75	21.67	8.78	4.14	3.31	2.88	0.67	0.54
2008	32.85	25.19	21.85	9.29	3.86	3.23	2.60	0.61	0.51

Table 11 Industry production contribution before and after NAFTA[a]

Subsector	Chemical	Machinery	Food	Basic Metals	Non-Metallic	Paper	Textiles	Wood	Others
Average Before NAFTA	16.00%	27.78%	26.32 %	5.97 %	4.92%	5.03 %	8.48%	3.18 %	2.32 %
Average After NAFTA	23.36%	31.15%	23.26 %	8.15 %	4.33%	4.16 %	4.23%	0.79 %	0.57 %

a) The analysis considers the before NAFTA period from 1988 to 1994, and the after NAFTA period from 1995 to 2008

Figure 12 depicts the development path followed by the manufacturing industry, showing that Mexico is moving from a low-tech industry with low value added production activities to a mid-low mid-high tech industry with high value added production activities.

The contribution of low-tech industries to the manufacturing sector decreased from 44.6% in 1988 to 28.81% in 2008, whereas for the mid-high tech industry it increased from 18.20% to 32.85%. The mid-low industry's contribution, however, almost remained the same during this period, moving from 12.30% in 1988 to 13.15% in 2008.

The participation of the high-tech industry in the manufacturing industry shows an expansion from 1998 to 2002, but its contribution level in 2008 is similar to the 1988 level, 25.19% in 2008 versus 25.44% in 1988.

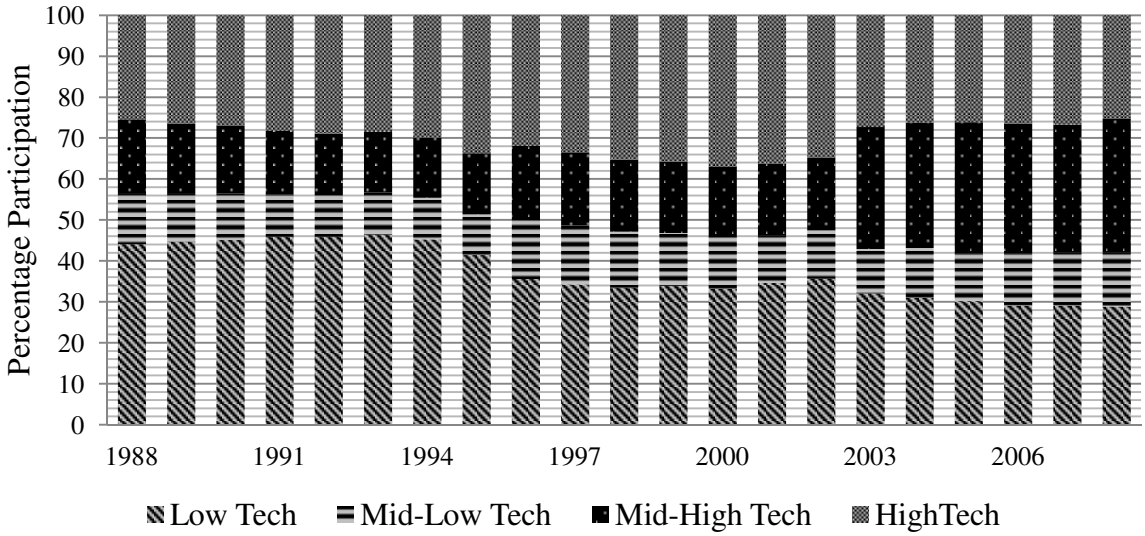
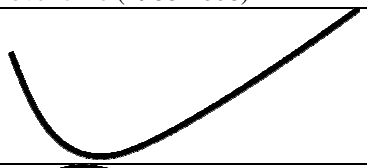
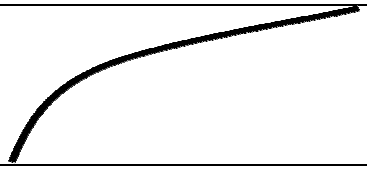


Figure 11. Manufacturing production contribution by technological intensity. Source: INEGI

Patterns of technological learning level

The learning path followed by each industry depends on different internal and external factors. The Mexican subsectors were analyzed and grouped based on the observed learning path during the period 1988-2008. Table 12 shows that the Mexican manufacturing industry can be grouped into three main patterns of learning, two of them with a concave shape and one with a convex shape; the convex shape is further subdivided into two learning paths depending on the estimated progress ratio values.

Table 12 Patterns of technological learning over time

Patterns of learning levels over time (1988-2008)	**Learning Path**	**Industry**
Convex learning path with a minimum 	Forgetting at all time	Machinery
	Learning at some beginning periods, but forgetting afterwards	Textile Wood
Concave learning path with a maximum 	Forgetting after beginning periods, but learning afterwards	Food Chemical Non-Metallic Basic Metals
Concave learning path with no maximum 	Forgetting at all time	Paper

The machinery industry shows no learning but continuous forgetting. However, a more in depth analysis uncovered an interesting finding regarding the actual progress ratio values in the various sub-sectors of the machinery industry; the textile and wood industry follow the same convex learning path, with some learning at the beginning of the period but forgetting afterwards. This is mainly due to the nature of the two latter industries which are labor intensive, low- tech intensity. Also both industries face high competition levels in the global market from cheaper labor countries.

The food, chemical, non-metallic and basic metals industries show a forgetting level after the beginning period, but this tendency is reversed and the industries move towards a learning stage which indicates that productivity issues were overcome and the industries engaged in innovation activities that contributed to lower production cost as production increased. This trend in the progress ratio level is probably the result of structural changes, for instance the FDI law enacted in 1993 and the NAFTA.

The paper industry follows a concave learning path with no maximum; the industry shows continuous forgetting, which indicates that its performance is worsening over time.

Factors contributing to technological learning

The dynamism of technological learning is influenced by different factors that could be either internal or external. This dynamism directly affects the changes in the progress ratio path over time at the firm, industry or national level. The achieved learning level may also vary at different manufacturing locations of a given company.

a) Globalization

Mexico implemented several neoliberal policies early in the 1980's that set the basis for its globalization process. The country gradually opened its economy to the world through various policies, such as adherence to the GATT in 1986. This globalization process has contributed to the development of the manufacturing industry in Mexico as a whole, but it has negatively impacted the labor intensive industries.

b) Foreign direct investment

Mexico re-designed its policy for FDI and eliminated several restrictions in the new FDI law of 1984. The FDI inflows, however, did not increase as expected and Mexico reformed its FDI law in 1993. This reform was in line with the NAFTA agreement that came into effect in 1994. The 1993 reforms had an immediate effect in the FDI inflows in Mexico as shown in Table 2, and around 50% of these inflows were allocated to the industrial sector. The manufacturing industry has benefited from this structural change that directly impacted technological learning in the industry.

c) North America Free Trade Agreement

The NAFTA has been the major contributor to the current condition of the Mexican manufacturing industry, and has influenced the allocation of internal and external resources in the country. The NAFTA, as observed in Table 14, has shaped the technological learning levels in various industries in Mexico. Through the NAFTA, Mexico has been able to consolidate its manufacturing industry and benefit from technological spillovers.

d) Other free trade agreements

Mexico has actively engaged in different free trade agreements not only in the region but globally. The most important free trade agreements besides NAFTA are the free trade agreement between Mexico and the European Union (2007), and the one between Mexico and Japan (2011). The various trade agreements have influenced technological learning in the manufacturing industry, and contributed to the re-structuring of the whole manufacturing industry.

Conclusion

The research findings demonstrate that the cubic model is stronger and provides better insights to the dynamic technological progress and learning effects in the industries compared with the linear model.

The study identified three main patterns of technological learning among the different industries: 1) a convex learning path with continuous forgetting or learning at the beginning but forgetting afterwards, 2) a concave learning path

with forgetting after the beginning period but learning afterwards, and 3) a concave learning path with continuous forgetting.

We found that overall the Mexican manufacturing industry is moving from labor intensive industries to capital intensive industries. The calculated progress ratios for the textile, wood and paper put these industries in a forgetting level, while the food industry remains very competitive with a high assimilation capacity. The chemical, non-metallic and basic metals industries show progress ratios around or below 0.5 which indicates that these industries have actively engaged in innovation activities, and are highly competitive.

It was found, however, that the machinery industry was in a forgetting level with a deteriorating performance over time. Given the importance of this industry in terms of its contribution to the total manufacturing industry and its impact on the future development of the Mexican manufacturing industry, further analysis was performed which revealed that the railroad and transport equipment played an important role in the Mexican manufacturing industry and showed an exceptional technological learning path. This case illustrates the need for a more detailed analysis; future studies should aim for an analysis at a 4 digits level.

In order to sustain industrial and economic growth, Mexico should put more emphasis on industries with learning potentials and adjust its technology policy structure. Overall, the focus should be on mid-low and mid-high tech industries, but these policies should be adjusted to correct the stagnant performance of the high-tech industry in the last two decades. Policies should also be enforced to support, rather than neglect the food industry.

The drastic decline of the high-tech contribution to total production demonstrates the weakness of technology policies at the national level that influence the long-run development of the Mexican manufacturing industry. The fact that the high-tech sub-sectors are in a forgetting level and contribute less to the total manufacturing industry has policy implications. Mexico should expand its high-tech national structure beyond its current priority, which appears to be in the railroad and transport equipment subsector. By adjusting the current national policy towards high-tech industries they can improve the design of the current high-tech industrial structure.

References

Adler, P. S., & Clark, K. B. 1991. Behind the Learning Curve: A Sketch of the Learning Process. *Management Science* , March *1991* vol. 37 no. 3 *267-281*..

Arrow, K. 1962. The Economic Implications of Learning by Doing. *The Review of Economic Studies* 29, June, pp. 155-173.

Asgari, B., & Yen, L. W. 2009. Accumulated Knowledge and Technological Progress in Terms of Learning Rates: A Comparative Analysis on the Manufacturing Industry and the Service Industry in Malaysia. *Asian Journal of Technology Innovation 17, 2* , 71-99.

Badiru, A. B. 1992. Computational Survey of Univariate and Multivariate Learning Curve Models. *IEEE Transactions on Engineering Management* , VOL. **39**, NO. 2, 176-188.

Baloff, N. 1966. The Learning Curve - Some Controversial Issues. *The Journal of Industrial Economics* 14 (3), 275-282.

Baloff, N., & Kennelly, J. W. 1967. Accounting implications of product and process start-ups. *Journal of Accounting Research (Autumn)* , 131-143.

BANXICO. 2011. Banco de Mexico. Retrieved May 27, 2011, from CR72 - Cuentas nacionales: http://www.banxico.org.mx/politica-monetaria-e-inflacion/estadisticas/otros-indicadores/ produccion.html

Belkaoui, A. 1986. *The learning curve "a management accounting tool".* London, England : Quorum Books.

Calva, J. L. 2004. La Economía Mexicana en Perspectiva. *EconomiaUNAM* , 63-85.

Cardero, M. E., & Aroche, F. 2008. Cambio Estructural Comandado por Apertura Comercial. El Caso de la Economia Mexicana. *Estudios Economicos* , 203-252.

CEFP. 2004. Evolucion del Sector Manufacturero de Mexico 1980-2003. Mexico: *Centro de Estudios de las Finanzas Publicas (CEFP)*.

Ernst, D., Ganiatos, T., & Mytelka, L. 1998. *Technological Capabilities and Export Sucess in Asia*. London: Taylor & Francis.

Figueiredo, P. N. 2001. *Technological Learning and Competitive Performance*. Massachusetts: Edward Elgar Publishing, Inc.

Hornstein, A., & Peled, D. 1997. External vs. Internal Learning-by-Doing in an R&D Based Growth Model. Federal Reserve Bank if Richmond , 1-38.

INEGI. 1998. Encuesta Industrial Anual 1996-1997. Mexico: INEGI.

INEGI. 2000. Encuesta Industrial Anual 1998-1999. Mexico: INEGI.

INEGI. 2002. Encuesta Industrial Anual 2000-2001. Mexico: INEGI.

INEGI. 2004. Encuesta Industrial Anual 2002-2003. Mexico: INEGI.

INEGI. 2010. INEGI. Retrieved December 14, 2010, from Banco de Informacion Economica: http://dgcnesyp.inegi.org.mx/cgi-win/bdieintsi.exe/NIVR250130#ARBOL

INEGI. 1998. Sistema de Cuentas Nacionales de Mexico. Cuentas de Bienes y Servicios 1988-1997. Mexico: INEGI.

Jackson, D. 1998. Technological Change, the Learning Curve and Profitability. Massachusetts: Edward Elgar Publishing, Inc.

Karaoz, M., & Albeni, M. 2005. Dynamic Technological Learning Trends in Turkish Manufacturing Industries , *Technological Forecasting and Social Change, Volume 72, Issue 7, September 2005, Pages 866-885*

Link, A. N., Kaufer, E., & Mokyr, J. 1987. *Economics of Technological Change*. London: Harwood Academic Publishers GmbH.

OECD. 2005. Directorate for Science, Technology and Industry. *Stan Indicators (2005 Edition)*. Paris: OECD.

OECD. 2000. *Experience Curves for Energy Technology Policy*. Paris: OECD.

Pramongkit, P., Shawyun, T., & Sirinaovakul, B. 2000. Analysis of Technological Learning for the Thai Manufacturing Industry. Technovation 20(4): 189-195.

Ramanathan, R. 1982. Lecture Notes in Economics and Mathematical Systems. New York: Springer-Verlag.

Ruttan, V. W. 2001. Technology, Growth, and Development. An Induced Innovation Perspective. New York: Oxford University Press.

W.G.J.H.M. van Sark. 2008. Introducing Errors in Progress Ratios Determined from Experience Curves 75(3): 405–415 http://www.sciencedirect.com/science/journal/00401625/75/3

Watanabe, C., & Asgari, B. 2004. Impacts on Funcionality Development on Dynamism between Learning and Diffusion of Technology. Technovation 24(8): 651-664.

REVIEW:

The shift from negative pacifism to positive pacifism; Japan's contribution to peacekeeping in Cambodia

Daisuke Akimoto[1]

Abstract

In 1992 the Japanese government enacted the International Peace Cooperation Law (PKO Law) to dispatch the Self-Defence Forces (SDF) to the United Nations Peacekeeping Operations (UN-PKO). Japan's participation in the peace operations in Cambodia was the first case to which Japanese peacekeepers were dispatched. This paper contextualises the history of the Cambodian conflict and Japan's diplomatic commitment to the Cambodian peace process; moreover it illustrates how Japan made incremental contributions to the peacekeeping operations in Cambodia. Finally, this study identifies the development of a shift from negative pacifism based on Article 9 of the Japanese Constitution to positive pacifism based on the Preamble to the Constitution of Japan which enabled Japan's participation in the post-conflict peacekeeping operations in Cambodia.

Keywords: Cambodia, Japan, Japan Self-Defence Forces (SDF), Pacifism, Peace and peacekeeping, United Nations Peacekeeping Operations (UN-PKO)

Introduction

Historical background of the genocide in Cambodia

In August 1863, Cambodia willingly became a French protectorate to avoid becoming a subject state of Thailand or Vietnam. During the Second World War, however, the Japanese Imperial Army marched into the Indochina Peninsula and was stationed in Cambodia by July 1941. Although Prince Norodom Sihanouk declared independence after the defeat of Japan in 1945, France became a "suzerain" again. In the wake of the Vietnamese movement for independence, Prince Sihanouk began the campaign to regain independence in 1953. In October of the same year, France turned over its politico-military control to the Cambodian authority, and Cambodia became independent. As the Vietnam War intensified, Sihanouk broke off the diplomatic relations with the United States. His economic policies created domestic unrest and offered pro-American General Lon Nol the opportunity to launch a successful coup d'état in 1970 (Chandler 1991: 67-72, 197-199). The withdrawal of the US forces after the end of the Vietnam War in 1975, however, lessened the political power of the Lon Nol government.

The Khmer Rouge, an extreme Maoist-style communist group under the leadership of Pol Pot, took power from the Lon Nol government in April 1975 and established Democratic Kampuchea. Pol Pot became the first prime minister and Sihanouk was confined to the Royal Palace in April 1976. On the basis of its extreme communist beliefs, the Pol Pot government carried out an infamous "genocide" program. Men and women were separated and children over five or six years old were forced to work. Vietnamese, Chinese, Muslims, and Buddhist monks were deported, executed or starved to death (Kiernan 1996: 55). The exact number of people who died under the genocide policy of the Pol Pot is not known, but estimated at about two million or 30% of the entire population at the time (Llewelyn, Walton and Kikkawa 2009: 174).

The Pol Pot government attempted to create a border conflict with Vietnam to turn attention away from the domestic issues. In response, the Vietnamese government invaded Cambodia on 25 December 1978 and the Khmer Rouge fled to Cambodia's border with Thailand (ibid). In response to the Vietnamese invasion of Cambodia, China

[1] Soka University Peace Research Institute, Soka University, Tokyo, Japan e-mail: dakimoto@soka.ac.jp

attacked Vietnam. The permanent members of the UN Security Council condemned the Vietnam-led invasion, and the UN General Assembly adopted resolutions, demanding the "withdrawal of Vietnamese forces" (Song 1997: 59-60).

After the invasion, Vietnam supported Heng Samrin in establishing a new government in January 1979. Once in power, the Heng Samrin government announced that as many as three million people were killed by the Pol Pot regime. Kimmo Kiljunen (1984: 30) inferred that the purpose of this inflated number was to justify the Vietnamese invasion. The Heng Samrin government was not widely recognised as the legitimate government of Cambodia, however. Instead, the Pol Pot faction occupied the seat in the United Nations (Fukuda 1992: 175). In response to the intervention, Prime Minister Ōhira Masayoshi warned Vietnam that Japan would not make a financial contribution unless Vietnam took peaceful measures against Cambodia (Hatano 2007: 188-189). The Ōhira government intended to contribute to conflict resolution through Japan's economic influence.

In opposition to the Heng Samrin government, the Coalition Government of Democratic Kampuchea (CDGK) was established consisting of the Sihanouk faction (under the leadership of Sihanouk), the Son Sann faction (based on the former Prime Minister Son Sann during the Lon Nol government), and the Pol Pot faction (the most influential military and economic power among the three parties) (Kōno 1999: 11-17). In order to change Cambodia from the "killing field" to the "filling field", the international community began cooperating for post-conflict peace operations (Uesugi 2004: 222-223). In this context, Japan attempted to make a direct diplomatic effort during the 1989 Paris Peace Conference.

Methodology

In the post-Cold War period, Japan explored its participation in United Nations Peacekeeping Operations (UN-PKO). After the enactment of the International Peace Cooperation Law (PKO Law) on 15 June 1992, the Japanese government dispatched for the first time three civilian electoral observers to Angola for supervising the national legislative and presidential elections in September 1992. The United Nations Transitional Authority in Cambodia (UNTAC), however, was the first UN-PKO to which the Japanese government dispatched the Self-Defence Forces (SDF) (Shinyo 1995: 239). Notably, with regard to its PKO policy, Japan's attitude towards security policy shifted from ''negative pacifism'' based on Article 9 of the Japanese Constitution to ''positive pacifism'' consistent with the Preamble of the Constitution (Akimoto 2012); this classification of Japanese pacifism stems from the definition of negative/positive peace advocated by Johan Galtung (1969).

There are a large number of scholarly works on Japan's contribution to UN-PKO in Cambodia (e.g. Akashi 2006; Hatano 2007; Llewelyn, Walton and Kikkawa 2009), but the shift to ''positive pacifism'' tends to be overlooked. Accordingly, the purpose of the paper is to contextualise and clarify the existence of the shift to positive pacifism which enabled Japan to join the peace operations in Cambodia. To investigate Japan's contribution to the peace process and the peace operations in Cambodia, this paper employs a timeline ''sequence analysis'' method, which will assist in examining the historical sequence of case studies in the field of social science (Abbott 1995).

In combination with the historical sequence analysis, this study utilises not only secondary sources published by leading scholars, but also primary sources, such as statements of parliamentary politicians at the National Diet, governmental documents by the Ministry of Foreign Affairs Japan (MOFA) and the Japan Defence Agency (JDA). In the application of the sequence analysis method, this paper reviews the historical background of the Cambodian conflict and Japan's diplomatic commitments to the Cambodian peace process. Next, Japan's preparation for and

participation in the UNTAC operation will be reviewed. Finally, the paper highlights the shift in Japan's security attitude to positive pacifism in the case of Japan's contribution to the peacekeeping operations in Cambodia.

Findings

Japan's peace diplomacy and the 1989 Paris Peace Conference

Japan's diplomatic policies on Cambodia were consistent with the 1977 Fukuda Doctrine, suggested by Prime Minister Fukuda Takeo who promised Japan would contribute to the "peace and prosperity of the Indochina countries" under the three principles of international cooperation, announced by Prime Minister Takeshita Noboru in 1988. In July 1989, Japan won the joint chairmanship with Australia for the third committee of the Paris Conference (Kōno 1999: 24-28). However, the first Paris Conference itself was not much satisfactory because of the power-sharing arrangement among the Cambodian factions.

On 26 September 1989, the Vietnamese government declared the withdrawal of its troops from Cambodia and the civil war intensified. The US Secretary of State, James Baker, proposed the idea of "neutralisation" of Cambodia under the transitional authority of the United Nations. The "Baker initiative" triggered the involvement of the P-5 (the five permanent members of the Security Council) process in the United Nations (ibid: 33-34). On 24 November 1989, the Australian Foreign Minister, Gareth Evans, in a Parliamentary speech announced a proposal, based on the so called "Red Book", which was similar to the Baker initiative. Notably, the Red Book contained a plan for a UN transitional authority (Department of Foreign and Trade Affairs Australia 1990; Evans 1993: 107-108).

Japan's involvement in the Cambodian peace process was not smooth. This was because the Heng Samrin government had the support of Vietnam which had been in a state of war with the United States. Moreover, the United States supported the Non-Communist Resistance (NCR), composed of the Sihanouk faction, or United National Front for an Independent, Neutral, Peaceful and Cooperative Cambodia (FUNCINPEC) and the Son Sann faction, or Khmer People's National Liberation Front (KPNLF). As a US ally, the Japanese government needed to be careful in making a diplomatic commitment to Cambodia because of the deteriorated relations between the United States and Vietnam (Kōno 1999: 52-54). Kōno Masaharu, a senior MOFA official, visited Washington to persuade the US government to support Japan's diplomatic involvement in the Cambodian peace process. Kōno emphasised that Japan had the right to play a political role instead of only making a financial contribution. Finally, Washington agreed to Japan's diplomatic contact with the Heng Samrin Cambodia and MOFA decided to contact the Phnom Penh government by dispatching Kōno in February 1990. Kōno met the government officials and succeeded in revitalising the diplomatic relationship with the Heng Samrin regime (ibid: 52-56). This diplomatic effort led to the Tokyo Conference in 1990.

The 1990 Tokyo Conference: a step for the Cambodian peace process

The Tokyo Conference on 4~5 June 1990, allowed Prince Sihanouk, Hun Sen, and Son Sann to discuss the Cambodian peace process, and broke the military deadlock after the withdrawal of Vietnamese forces and political impasse following the failure of the third Jakarta Informal Meeting held in February 1990. The Tokyo Conference had significance since it was one of the rare cases of Japan's direct involvement in the international peace process in the post-war diplomatic history.

Still, there were some criticisms. Song Jin (1997: 72) described the conference as a failure because the "Khmer Rouge refused to abide by any agreement it had not signed". Nonetheless, the conference was an unprecedented diplomatic contribution and created opportunities for the Cambodian peace process. Successful aspects of the Tokyo Conference included the fact that Prince Sihanouk and Prime Minister Hun Sen signed a joint communiqué which

included a number of agreements such as the establishment of the Cambodian Supreme National Council (SNC) to balance the representatives from the two governments. After the conference, the Japanese government used shuttle diplomacy to foster higher levels of trust. Ambassador Imagawa Yukio was dispatched to Phnom Penh in February 1991, and Prime Minister Kaifu Toshiki and Foreign Minister Nakayama Tarō met Prime Minister Son Sann in March 1991 in Tokyo. Foreign Minister Nakayama met Prince Sihanouk in April in Beijing and Ōwada Hisashi, Vice Minister of MOFA, spoke to Hun Sen (Llyewelyn, Walton and Kikkawa 2009: 182-184).

The Tokyo Conference and the following diplomatic talks garnered trust from Cambodian leaders. One of the reasons for the success of the SNC in the Tokyo Conference could be the absence of the Khmer Rouge; according to Imagawa (2000: 98-99), if the Khmer Rouge participated in the process of setting up the SNC, the Conference would have failed. Although Khieu Samphan did not participate in the Conference, the Khmer Rouge accepted the power sharing of the SNC three months after the Conference (Ikeda 1996: 78-85). The relative share in the SNC decisions in the Tokyo Conference (Hun Sen faction 6, Sihanouk faction 2, Son Sann faction 2, and the Khmer Rouge faction 2) was approved by the four Cambodian factions including the Khmer Rouge as well as the P5 and Indonesia (ibid: 102). The establishment of an appropriate power sharing deal among the four factions was one of the most important aspects in the resolution of the Cambodian conflict. Thus the Tokyo Conference demonstrated Japan's capacity to be effective in diplomacy and was a significant step forward in the Cambodian peace process.

The 1991 Paris Agreements: a blueprint for UNTAC

On 23 October 1991 agreements on a Comprehensive Political Settlement of the Cambodian Conflict (Paris Peace Agreement) were signed which prescribed a ceasefire and a move towards a peaceful liberal democracy in Cambodia. The agreement was signed by the SNC, as the representative and legitimate authority in Cambodia, and 18 other countries in the presence of UN Secretary-General Javier Perez de Cuellar. The significance of the Paris Peace Agreement lies in the fact that it put an official end to the 20 year long war in Cambodia (Suntharalingam 1997: 82). The agreement concluded that the factional armies had to be disarmed and demobilised. In short, democratisation and demilitarisation were used to help establish a peaceful democratic government. Until the general election was held in May 1993, the SNC was to take charge of the sovereign authority. In November 1991, Sihanouk returned to Phnom Penh as President of the SNC, and the United Nations Advance Mission in Cambodia (UNAMIC) was organised (Llyewelyn, Walton and Kikkawa 2009: 186). UNAMIC was set up with the purpose of monitoring the ceasefire and mine-clearance program based on UN Security Council Resolution 717, 16 October 1991. UNAMIC functioned more like a "proxy"; its role was not as comprehensive as that of UNTAC with 379 peacekeepers composed of civilian and military staff, logistics and support personnel as well as a military mine awareness unit (Lee Kim and Metrikas 1997: 109-110). During the UNAMIC operation, the Japanese government was still in the middle of a deliberation whether the SDF could participate in the post-conflict peace operations. Even after the establishment of UNTAC, Japan could not deploy the SDF without the enactment of PKO legislation.

The Paris Peace Agreement authorised the political legitimacy of the SNC and stipulated the establishment of UNTAC (Embassy of Japan in Cambodia). According to Michael Doyle (1995: 27-28), the roles of UNTAC prescribed in the Paris Agreement were mainly traditional UN peacekeeping operations, emphasis on a "neutral political environment" and "free and fair elections". More importantly, the Paris Agreements contributed to establishing a "liberal democracy" by setting up the Cambodian Constitution (ibid: 28-29). Despite these positive efforts, the Khmer Rouge did not accept the UNTAC operations and repeatedly violated the ceasefire disturbing and attacking peacekeepers, and arguing that UNTAC operations increased the influence of Vietnam (Imagawa 2000).

Nonetheless, in the context of its diplomatic commitments through the 1989 Paris Conference, the 1990 Tokyo Conference, and the authorisation of the 1991 Paris Agreements, the Japanese government explored ways to dispatch SDF to UNTAC.

Establishment of UNTAC and appointment of SRSG Akashi Yasushi

UNTAC, the largest PKO in the UN history at that time, was organised to ensure the implementation of the Paris Agreement based on the UN Security Council Resolution 745. UN Under-Secretary-General Akashi Yasushi was designated as the Special Representative of the Secretary-General (SRSG) and Chief of Mission for Cambodia and Lieutenant-General John Sanderson was nominated as the Force Commander. As many as 15,991 troops were deployed and approximately $1.6 billion was spent on UNTAC (United Nations 2012). The fact that Akashi was appointed to the SRSG was fortunate for Japan because of a desire in Tokyo to change from passive diplomacy to a more active and creative approach.

In additional, Ogata Sadako, UN High Commissioner for Refugees (UNHCR), was responsible for the repatriation of about 370,000 Cambodian refugees. The role played by these two Japanese officials working for the United Nations assisted Japan's efforts at proactive diplomacy in Asia and at the United Nations. Meanwhile, Cambodia requested that Japan make a contribution to the UNTAC operation. On 22 March 1992, Cambodian Prime Minister Hun Sen visited Tokyo and asked Foreign Minister Watanabe Michio to dispatch SDF to Cambodia (Imagawa 2000: 154-155, 162-163). Prince Sihanouk told Ambassador Imagawa that "Japan Self-Defence Forces are the most ideal for the UNTAC operation because the Japanese Constitution completely renounces acts of aggression" (ibid: 164). One of the reasons why the Socialist Party and other opposition parties were against the dispatch of the SDF was opposition from the Asian countries (Miyoshi 1994: 57-58). Therefore, the requests from Prime Minister Hun Sen and Prince Sihanouk were significant factors in the enactment of the PKO Bill.

UNTAC operations were divided into several divisions and multifunctional in comparison with conventional UN-PKO (MOFA 2012a). The SDF participated in the civilian policy component, electoral component, military observers (ceasefire units) and engineering units (ibid). Not only the personnel of the SDF, but also 75 civilian police officers were dispatched for the UNTAC operation and were assigned to provincial and local police stations to deal with the investigations and actual criminal cases as well as to control the rush-hour traffic in Phnom Penh and other cities (MOFA 2012b). To assist these components of the UNTAC, the "Ministerial Conference on Rehabilitation and Reconstruction of Cambodia" was held in Tokyo (Doyle 1995: 30). The characteristics of UNTAC operations were unique and unprecedented in that its peacekeeping operations were comprehensive and "multidimensional peace operations" (Doyle 1997: 1). In particular, the United Nations played a significant role as a temporary transitional authority. These multidimensional operations in UNTAC required special training of SDF contingents for peacekeeping operations.

SDF preparation for UNTAC: training as a UN peacekeeper

The Japanese government dispatched "international peace cooperation inspectors" to investigate actual conditions in the UN-PKO on 1 July 1992. On 27 July, representatives from the JDA staff participated in the UN training centre in Sweden to acquire general know-how. After an official request from the United Nations on 3 September, the Japanese government decided on the "programme on UNTAC operation" in the Cabinet Council on 8 September (JDA 1993: 179). Before participating in UNTAC, the Ground Self-Defence Forces (GSDF) personnel were retrained as international peacekeepers at the Sweden UN Centre. This included information on UN-PKO, conditions of the field, English language course, and health and hygiene matters (ibid: 181-183). The Maritime Self-Defence Force (MSDF)

and the Air Self-Defence Force (ASDF) conducted an in-depth investigation as international peace cooperation inspectors (ibid: 183-185). Because of the training programs, unlike other countries the government could not dispatch SDF to UN-PKO straight away. This process can be considered the first step for Japan's military normalisation as it enabled the SDF to contribute to international peacekeeping operations. Meanwhile, the training of the SDF at the UN Centre in Sweden enabled the SDF to carry out the tasks of an international peacekeeper.

SDF participation in UNTAC: activities as a UN peacekeeper

The first battalion of the GSDF departed the Komaki base by C-130 aircrafts on 23 and 24 September 1992, and arrived in Cambodia on 25 and 26 September, and all of 600 members of the first battalion reached Cambodia by 14 October. The first battalion carried out peacekeeping operations for six months and returned to Japan on 10 April 1993. The second battalion arrived on 8 April 1993. After moving to Takeo (stronghold of the SDF), GSDF performed a search and clearing of the bomb disposals (ibid: 185-187). The primary mission of the first 600-member engineering contingents was to reconstruct the roads and bridges destroyed by the civil war. At the request from UNTAC, the peacekeeping role of the SDF was expanded to include water and food, medical services, fuel and transportation, lodging facilities, and the protection of material related to the election (MOFA 2012b). The second battalion was organised on 8 March 1993 to succeed the first one and undertake the same operations. They departed from Japan on 29 March and all 600 members completely arrived by 11 April. Following the death of some Japanese UNTAC staff, the second battalion took precautionary measures with necessary weapons, bullet-proof vests, and iron helmets. The second battalion also provided support for parliamentary elections, such as transportation of election-related equipment, construction of large awnings for ballot-counting stations, and safekeeping of the emergency food under the instruction of prime minister and UNTAC (JDA 1993: 189-190).

However, the Khmer Rouge did not stop attacking UNTAC peacekeepers. As a result, in a meeting of the expanded P5, the United States and Australia suggested the implementation of military sanctions against the Khmer Rouge on the basis of Chapter 7 of the United Nations Charter. France and Japan contended that the United Nations should take non-military but effective measures so as not to violate the Paris Peace Agreements and the Five Principles of the PKO Law. The UN Security Council as well as Japan cooperated to write a compromise plan as UNSC Resolution 792, which stipulated "measures" (not sanctions) against the Khmer Rouge including a ban on the supply of petroleum products, timber, ore and jewels. It was a rare case for Japanese diplomacy that Japan was actively involved in writing the UN Security Council Resolution (Ikeda 1996: 194-196). The Japanese government's involvement in writing UN Resolution 792 symbolises the dilemma between the normative constraint of the Five Principals and the reality in Cambodia.

Impact of the death of Japanese citizens in Cambodia

As a professional military organisation, SDF contingents were able to protect themselves but UN volunteers and police officers were defenceless against the Khmer Rouge attacks. On 8 April 1993, a United Nations Volunteer Nakata Atsuhito was shot dead. In response, Akashi stated "if one more electoral worker is killed, the UN Volunteers (the principal electoral organisers) would be withdrawn" (Doyle 1995: 58). On 3 May, a civilian police Takada Haruyuki was murdered by the Khmer Rouge forces while moving with Dutch troops (Imagawa 2000: 196-203). These incidents happened because unlike the SDF, UN Volunteers and civilian police did not choose safe places. In fact before Nakata and Takada were murdered, Ambassador Imagawa expressed concern about the security situation of civilian police on January 6th (Kondō 1994: 27, 37). Akashi stated that "this sacrifice rather strengthened our determination to carry out

our purpose" and that "Prince Sihanouk promised the Secretary-General (Boutros Ghali) and me to wholly support the UNTAC operation" (Miyoshi 1994: 176).

John Sanderson recognised the importance of this arrangement because it explicitly indicated that UNTAC would not allow the Khmer Rouge to disrupt the National Assembly Election. Akashi also supported military assistance from the Phnom Penh government as long as it did not exceed the exercise of the self-defence right or violate the ceasefire stipulated in the Paris Agreement (ibid: 183-184). The decision of the Defence Arrangement without the agreement of the Khmer Rouge as a key conflict party could have invalidated the "neutrality" of the United Nations. Yet, this decision was based on a realistic evaluation of the situation that the Khmer Rouge did not possess sufficient military power to disrupt the entire election (ibid). After the death of Nakata and Takada, a debate surged in Japan about the SDF and possible withdrawal from Cambodia. A particular issue was concern over the fact that the Khmer Rouge did not accept disarmament and had become more rebellious. Terrorism, violence, and military raids occurred as the day of the National Assembly Election approached. In the wake of the death of two Japanese citizens, the opposition parties in Japan began arguing that the Japanese government should pull out the SDF on the basis of the Five Principles (Ikeda 1996: 181-182).

Furthermore, the plan to withdraw the SDF was discussed within the LDP government, and according to Akashi, even Chief Cabinet Secretary Kōno Yōhei was supportive of the pull-out plan. However, Prime Minister Miyazawa Kiichi made a final decision not to withdraw the SDF and the government explained to the public that peacekeeping operations might entail danger but that the "noble mission" has to be completed (Miyoshi 1994: 198-206). Thus, the Miyazawa government expressed its support for UNTAC to carry out the National Assembly Election. Even if the security situation worsened in a certain area, it was not considered as a violation of ceasefire because the ceasefire was a must for peacekeeping operations and the SDF had to be pulled out otherwise. The Five Principles on UN-PKO were interpreted as not being violated (Ikeda 1996: 188, 193) and in spite of the deaths of Japanese citizens, Prime Minister Miyazawa made a pragmatic decision not to withdraw the Japanese peacekeepers.

The General Assembly elections in Cambodia

To support the National Assembly elections which enacted the Cambodian Constitution, five national government officers, 13 local government officers, and 23 individuals from the private sectors were dispatched from Japan. They stayed at schools and temples in Takeo and Phnom Penh to monitor the process of the election. As a result of the support from UNTAC, the National Assembly election was held from 23 to 28 March 1993 (MOFA 2012b). The SDF patrolled the election areas to support the Japanese electoral monitors, though it was a dangerous operation. The "patrol" of the SDF turned out to be effective and prevented from possible armed attacks by the Pol Pot (Yanagihara 1994: 54-55).

In spite of violent disturbance by the Khmer Rouge, the National Assembly election was carried out and the Phnom Penh government, which had been in power for 13 years, was defeated by FUNCINPEC. More than 89.5% of eligible voters (4.26 million people) voted in the election. The participation of an overwhelming number of voters indicated the success of the election which owed it partly to "Radio UNTAC" notifying the details of the elections around the entire country. From 7 April to 19 May, the radio broadcasted information about the election, political opinions presented by each political party, and opportunities for objection if a political party was unreasonably slandered (Yamauchi 1992: 21-24; Yamauchi 2002). FUNCINPEC established the coalition government with the former Phnom Penh government. The United States and the UN headquarters as well as UNTAC were concerned that it could harm the principle of democracy. However, both Akashi and Sanderson came to the conclusion that radio

broadcasts were the best option. In September 1993, the new Constitution was promulgated and the Constitutional Monarchy reinstated with the inauguration of Sihanouk (Akashi 2006: 62). The General Assembly election turned out to be successful due to the decisions made by Akashi.

Post-election peace-building operations in Cambodia

The second battalion was ordered by UNTAC to construct a container storage space at Sihanoukville port. The activities were supported by the headquarter control troops made up of about 220 members in charge of meal and water supply, bathing, maintenance of vehicles, fuel, and medical and sanitary affairs, especially preventing Malaria. The two MSDF transport ships Miura and Ojika and the MSDF replenishment ship Towada were dispatched from Kure port to Cambodia on 17 September and arrived in Sihanoukville on 2 October 1992. These MSDF ships supported the accommodation of about 5,000 people, produced about 14,000 meals, and offered medical support for about 200 people. The ASDF troops had been dispatched to Thailand, the Philippines and Cambodia since 21 September 1992 to support air-transport for the first battalion. Six C-130H crafts departed from the Komaki base on 23 and 24 September and six others were dispatched on 1 and 2 October. The purpose of these ASDF airplanes was to support activities on the spot with replenishment tools (JDA 1993: 190-195). Eight GSDF personnel participated in the ceasefire monitoring in cooperation with troops from other countries. The first eight ceasefire observers were dispatched from September 1992 to March 1993. The second eight personnel were dispatched from March to September 1993. Their peacekeeping mission was rather hazardous as the operation required not only monitoring the ceasefire but also supervising encampments, controlling disarmed weapons, and monitoring the border to prevent infiltration by other forces and the smuggling of weapons and ammunitions. According to SDF personnel who participated in UNTAC, they felt proud of new roles of SDF as international peacekeepers (ibid: 196-199).

Discussion

An assessment of SDF participation in UNTAC

Although it is difficult to assess the successfulness of SDF's participation in UNTAC, measurable achievements in the operation can be raised. As described above, the SDF participated in peacekeeping and peace-building in Cambodia and did not play a particularly military role. Yet, the presence of the SDF functioned as a "deterrent" against the Khmer Rouge. In fact, one of the leaders of Khmer Rouge told Ambassador Imagawa after the UNTAC operation was over that the Khmer Rouge did not attack the base of the SDF because they assumed that the SDF brought brand-new and expensive equipment and weapons including at least 200 machine guns (Imagawa 2000: 184). Furthermore, former US Ambassador to the United Nations, Madeleine Albright was impressed by observing the peacekeeping operations of the SDF and repeatedly (three times) told Ambassador Imagawa that "Japan is entitled to be a permanent member of the UN Security Council" (ibid: 186-187). Therefore, sending SDF to UNTAC represents Japan's motivation to enhance its international profile and political influence. The above two examples do not necessarily mean that Japan increased its military power and international prestige through peacekeeping activities, but signify the success of SDF participation in UNTAC. Simultaneously, Japan succeeded in transforming its self-defence force into international peacekeepers. Moreover, the SDF dispatch contributed to the success of the UNTAC operation itself.

As Michael Doyle pointed out, UNTAC contributed to the independence of Cambodia which was once colonised by France, invaded by Japan and Vietnam, and influenced by the power politics of China, Russia, and the United States in the Cold War. Secondly, the presence of UNTAC troops had an impact on the ceasefire to the Cambodian Civil War. As described above, even the presence of the Japanese Self Defence Forces acted as a deterrent. Thirdly,

repatriation of 370,000 refugees from Thailand by the Repatriation Component of UNTAC (staffed by UNHCR) was also successful. UNHCR under the leadership of Ogata Sadako took a bigger responsibility in the repatriation process of Cambodian refugees. Fourthly, implementation of democratic elections became characteristic of peacekeeping operations of UNTAC (Doyle 1995: 32-34, 57-58). In addition, given the ongoing threat of violence by the Khmer Rouge, the "most momentous action Special Representative Akashi took was to recommend moving ahead toward the election" (ibid). Although a Japanese UN volunteer and a civilian police were victimised, SDF participation in UNTAC can be regarded as a success.

Negative pacifism: Article 9 as a normative constraint on SDF dispatch

Negative pacifism has been a restrictive factor to the overseas dispatch of the SDF. The most effective example of the influence of negative pacifism was the rejection of the 1990 UN Peace Cooperation Bill. The Five Principles and the "freeze" of PKF participation, moreover, were by-products of negative pacifism. In fact, according to the opinion poll of the *Yomiuri Shimbun*, 53.6% favoured the "freeze" of PKF participation whereas 22.7% opposed it. Moreover, 56% of the same group still considered the SDF's overseas deployment "problematic" in terms of Article 9 of the Constitution (Shinn 1992: 3, 5).

Not surprisingly, the overseas dispatch of the SDF was opposed by Japanese leftist politicians. On 11 November 1991, during the deliberation of the PKO Bill at the Diet, Tanabe Makoto from the JSP denied the necessity of the SDF dispatch to Cambodia (NDL, *Proceedings of the 122nd Diet Session, Lower House Plenary Session*, 11 November 1991). Tanabe also argued that the PKO Bill presented by the government, which mainly aimed at the overseas dispatch of the SDF, was inappropriate to the needs of the Cambodian people (NDL, *Proceedings of the 123rd Diet Session, Lower House Plenary Session*, 28 January 1992). In short, the Socialist Party insisted on the withdrawal of the PKO Bill to observe the "non-military" role of a pacifist Japan, based on Article 9. Likewise, Ueda Kōichirō from the Japanese Communist Party (JCP) expressed his opposition to the bill, paying attention to Article 9 and the "ban on the overseas deployment of the SDF" adopted by the House of Councilors in 1954 (NDL, *Proceedings of the 123rd Diet Session, Upper House Plenary Session*, 6 June 1992).

Based on negative pacifism, a group of Japanese citizens filed a lawsuit against the Japanese government (Kenmochi et al. 1998: 10-15). The group, who opposed the overseas dispatch of SDF, sued the government arguing that the PKO Law interfered with Article 9 and was unconstitutional (ibid). According to the plaintiffs, the SDF set up a base at a former Japanese Imperial Army establishment so the SDF was called the "Japanese Army" by Cambodian people. As an alternative, they suggested that the Japanese government could have contributed to UNTAC by non-military means such as medical service and human rights activities as carried out by the Sweden government (ibid). Although the plaintiffs lost the case, Article 9 was still a source of argumentation.

In the wake of the deaths of UN Volunteer Nakata and the Civilian Police Takada, even LDP members began considering the withdrawal of the SDF from Cambodia. Junichirō Koizumi, then Minister of Posts and Telecommunications, argued in the Diet that the deaths of Nakata and Takada were not something the Japanese government assumed at the outset in the Cambodian peacekeeping operations. Koizumi pointed out the limitations of the PKO Law as well as the necessity of the withdrawal of the SDF out of Cambodia (NDL, *Proceedings of the 126th Diet Session, Upper House Communication Committee*, 13 May 1993; NDL, *Proceedings of the 126th Diet Session, Lower House, Communication Committee*, 19 May 1993).

Koizumi's opposition indicates how influential negative pacifism was as Japan dealt with its first experience in a UN-PKO. At the stage of UNTAC participation, Japan had not reached a consensus regarding practicability of the SDF

dispatch to UN-PKO. This uncertainty led to opposition to SDF participation in UNTAC. As explained in the next section, the Japanese government shifted focus from negative pacifism to positive pacifism based on the Preamble of the Constitution to overcome these obstacles.

Positive pacifism: the preamble and the SDF for international cooperation

Japanese Diet members began quoting the Preamble of the Japanese Constitution (positive pacifism) to legalise SDF dispatch for post-war peace operations. The Special Study Group on Japan's Role in the International Community, the so-called "Ozawa Committee" played a central role as a domestic pressure group on this shift in security policy which eventually enabled the SDF to participate in UNTAC. The content of the Ozawa Committee was made up of "reinterpretation of the Japanese Constitution" and "suggestions for Japan's security policy". The reinterpretation of the Constitution by the Ozawa Committee referred to the concept of "positive pacifism" which facilitates Japan's international contributions. The report of the Ozawa Committee emphasised on the positive spirit of the Japanese Constitution as "active pacifism and completely different from negative pacifism" (Okumiya 1992: 161).

Thus, the Ozawa report explicitly distinguished "negative pacifism" from "positive pacifism" to justify Japan's contribution to the maintenance of international peace and security. Notably, not only the LDP government but also Kōmeitō supported the shift from negative pacifism to positive pacifism. On 24 September 1991, Watanabe Ichirō from Kōmeitō quoted the Preamble of the Constitution (NDL, *Proceedings of the 121st Diet Session, Lower House Plenary Session*, 24 September 1991). Furthermore, Watanabe pointed out that participation in UN-PKO is congruous with "UN centrism" as Japan's diplomatic policy (ibid). Although Kōmeitō was an opposition party at that time, the party shared the view of the government that the Preamble can be a constitutional base to justify Japan's participation in UN-PKO. In response to the statement of Watanabe, Prime Minister Kaifu responded that "I completely agree with the idea that participation in UN-PKO is consistent with the Preamble of the Constitution as well as UN centrism as a diplomatic stance of our country" (ibid). As shown in these statements, the Preamble as "positive pacifism" was a keyword to legitimatise the SDF dispatch for post-war peacekeeping operations.

Likewise, Prime Minister Miyazawa quoted the Preamble to justify the legitimacy of the PKO Bill, stating that "the contents of the PKO Bill are obviously what the Constitution of our country and its Preamble expects, and there is no doubt that it is peaceful international contributions" (NDL, *Proceedings of the 123rd Diet Session, Upper House Plenary Session*, 30 January 1992). Immediately after the enactment of the PKO Law on 15 June 1992, Prime Minister Miyazawa furthermore reconfirmed the legitimacy of SDF participation in UN-PKO referring to pacifism and international cooperation in the Constitution (Maeda 1993: 118). These statements show that the Japanese government decided to justify the SDF dispatch for UN-PKO based on the Preamble of the Japanese Constitution (positive pacifism).

Conclusion

As examined through the historical sequence analysis, a shift happened from "negative pacifism" to "positive pacifism" through the SDF dispatch to UNTAC. Japanese diplomatic commitment to the Cambodian peace process became gradually active in the 1989 Paris Conference. By the 1990 Tokyo Conference, which led to the signing of the 1991 Paris Agreements and participation in UNTAC, Japanese diplomats demonstrated a commitment to resolving the Cambodian imbroglio. Although the SDF dispatch to the Gulf War was prohibited by opposition based on Article 9 of the Japanese Constitution (negative pacifism), the SDF dispatch to UNTAC was approved in the Diet on the basis of the Preamble of the Constitution (positive pacifism).

Before participating in UNTAC, the Japanese government sent the international peace cooperation observers to Cambodia. The GSDF personnel were trained as international peacekeepers in the Sweden UN Centre and the Japanese peacekeepers were dispatched to UNTAC on the basis of the PKO Law. This process shows that the nature of Japan's military was transformed into an international peacekeeper. Even after the deaths of Japanese citizens, Prime Minister Miyazawa decided to continue Japan's contribution to UNTAC. Hence, Japanese peacekeepers were able to contribute to the General Assembly election and post-election peacebuilding in Cambodia.

The SDF's as well as Japan's participation in UNTAC can be considered successful for a number of reasons, including the end of civil war, independence, return of 370,000 refugees, and a 90% voting rate in the democratic National Assembly Elections. This became a turning-point in Japan's security policy which is recognized by the shift from negative pacifism to positive pacifism. In sum, Japan's participation in UNTAC was the very first case that Japanese peacekeepers made international contribution on the basis of positive pacifism.

References

Abbott, Andrew. 1995. ''Sequence Analysis: New Methods for Old Ideas'', *Annual Review of Sociology* 21: 93-113.

Akashi, Yasushi. 2006. *Kokusai Rengō: Kiseki to Tenbō [The United Nations: Its Historical Track and Future Prospect]*. Tokyo: Iwanami Shoten.

Akimoto, Daisuke. 2012. '''Positive Pacifism' and the Development of Japan's PKO Policy'', *Soka University Peace Research* 26: 27-53.

Chandler, David P. 1991. *The Tragedy of Cambodian History: Politics, War, and Revolution since 1945*. London: Yale University Press.

Department of Foreign Affairs and Trade Australia. 1990. *Cambodia: An Australian Peace Proposal (Red Book): Working Paper prepared for the Informal Meeting on Cambodia*. Canberra: The Australian Government Publishing Service.

Doyle, Michael. 1995. *UN Peacekeeping in Cambodia: UNTAC's Civil Mandate*. London: Lynne Rienner Publishers.

Doyle, Michael, ed. 1997. *Keeping the Peace: Multinational UN Operations in Cambodia and El Salvador*, New York: Cambridge University Press.

Embassy of Japan in Cambodia, *The Paris Agreement*, 23 October 1991, http://www.kh.emb-japan.go.jp/political/nikokukan/kyotei.htm (accessed 4 October 2008).

Evans, Gareth. 1993. *Cooperating for Peace: The Global Agenda for the 1990s and Beyond*. St. Leonards, NSW: Allen and Unwin.

Fukuda, Kiku. 1992. *Kokuren to PKO: Tatakawazaru Guntai no Subete [UN and PKO: Non-Fighting Armies]*. Tokyo: Tōshindo.

Galtung, Johan. 1969. ''Violence, Peace, and Peace Research''. *Journal of Peace Research* 6(3): 167-191.

JDA (Japan Defence Agency). 1993. *Defence of Japan 1993 [Bōei Hakusho or Defence White Book]*.

Hatano, Sumio. 2007. ''Kanbojia Mondai to Nihon Gaikō [Cambodian Issues and Japanese Diplomacy]''. In *Gendai Nihon no Tōnan Asia Seisaku, 1950-2005 [Southeast Asian Policy of Contemporary Japan, 1950-2005],* eds. Sumio Hatano, and Susumu Satō. Tokyo: Waseda University Press.

Ikeda, Tadashi. 1996. *Kanbojia Wahei eno Michi: Shōgen Nihon Gaikō Shiren no 5 Nenkan [The Road to Cambodian Peace: Testimony, a Five Year Trial of Japanese Diplomacy]*. Tokyo: Toshi Shuppan.

Kenmochi, Kazumi, et al. 1992. *Kanbojia PKO: Bunseki to Shiryō [PKO in Cambodia: Analysis and Data]*. Tokyo: Ryokufū Shuppan.

Kenmochi, Kazumi, et al. 1998. *Kanbojia PKO Iken Soshō [Lawsuit against Unconstitutionality of the PKO Law and SDF Dispatch]*. Tokyo: Ryokufū Shuppan.

Kiernan, Ben. 1996. *The Pol Pot Regime: Race, Power, and Genocide in Cambodia under the Khmer Rouge, 1975-79*. New Haven and London: Yale University Press.

Kiljunen, Kimmo. 1984. *Kampuchea: Decade of the Genocide*, *Report of a Finnish Inquiry Commission*. London: Zed Books.

Kondō, Jun'o. 1994. *Yureugoita 372 Nichi: Kanbojia PKO [Oscillating 372 Days: PKO in Cambodia]*. Tokyo: Nihon Hyōronsha.

Llewelyn, James, David Walton, and Gen Kikkawa. 2009. *A Pacifist State in a Hostile Region: Japan and Post-War Conflict in Southeast Asia*. New York: Nova Science Publishers.

Maeda, Tetsuo. 1993. *Kanbojia: PKO Jūgunki [Cambodia: Record on PKO]*. Tokyo: Mainichi Shimbunsha.

Miyoshi, Norihide. 1994. *Kanbojia PKO [Cambodia PKO]*. Tokyo: Aki Shobō.

MOFA (Ministry of Foreign Affairs, Japan). 2012a. *Outline of UNTAC*,http://www.mofa.go.jp/policy/un/pko/pamph96/2_3.html (last accessed 2 November 2012).

MOFA. 2012b. *Japanese Participation in UN Peacekeeping: Cambodia*, http://www.mofa.go.jp/policy/un/pko/pamph96/02_2.html (last accessed 3 November 2012)

NDL(National Diet Library). 24 September 1991. *Proceedings of the 121st Diet Session, Lower House Plenary Session*. http://kokkai.ndl.go.jp (accessed 4 November 2012).

NDL. 11 November 1991. *Proceedings of the 122nd Diet Session, Lower House Plenary Session*, available at: http://kokkai.ndl.go.jp (accessed 3 November 2012).

NDL. 28 January 1992. *Proceedings of the 123rd Diet Session, Lower House Plenary Session*, http://kokkai.ndl.go.jp (accessed 3 November 2012).

NDL. 6 June 1992. Statement of Kōichirō Ueda, *Proceedings of the 123rd Diet Session, Upper House Plenary Session*, http://kokkai.ndl.go.jp (accessed 3 November 2012).

NDL. 13 May 1993. *Proceedings of the 126th Diet Session, Upper House Communication Committee*. http://kokkai.ndl.go.jp (accessed 3 November 2012).

NDL. 19 May 1993. *Proceedings of the 126th Diet Session, Lower House, Communication Committee.* http://kokkai.ndl.go.jp (accessed 3 November 2012).

NDL. 30 January 1992. *Proceedings of the 123rd Diet Session, Upper House Plenary Session*. http://kokkai.ndl.go.jp (accessed 5 November 2012).

Okumiya, Masatake. 1992. *PKO to Kenpō to Kokusai Shakai no Naka de Towareru Nihon [PKO, the Constitution and Japan in the International Society]*. Tokyo: PHP Kenkyūjo.

Shinn, Rinn-Sup, and Lois B. McHugh. 1992. *Japanese Participation in United Nations Peacekeeping Operations*. Washington, D.C.: Foreign Affairs and National Defense Division, Congressional Research Service, the Library of Congress, CRS.

Shinyo, Takahiro. 1995. *Shin Kokuren Ron: Kokusai Heiwa no tame no Kokuren to Nihon no Yakuwari [A New Theory of UN: The Role of UN and Japan for International Peace]*. Osaka: Osaka University Press.

Song, Jin. 1997. ‘‘The Political Dynamics of the Peacekeeping Process in Cambodia’’. In *Keeping the Peace: Multidimensional UN Operations in Cambodia and El Salvador*. ed. Michael Doyle. New York: Cambridge University Press.

Uesugi, Yūji. 2004. *Kawariyuku Kokuren PKO to Funsō Kaiketsu: Heiwasōzō to Heiwakōchiku o tsunagu [Changing UNPKO and Conflict Resolutions: Linking Peacemaking and Peacebuilding]*. Tokyo: Akashi Shoten.

United Nations. *UNTAC Facts and Figures*, http://www.un.org/Depts/dpko/dpko/co_mission/untacfacts.html (accessed 4 October 2008).

Yamauchi, Yasuhide. 1992. ‘‘Kokuren Kanbojia Heiwa Iji Katsudō no Genjō to Nihon no Torikumi [Reality of UNTAC and Japan’s Commitment]’’, *International Institute for Global Peace*, Policy Paper, J. 97.

Yamauchi, Yasuhide. 2002. ‘‘Kokuren Heiwa Iji Katsudō to Rajio Antakku [UNPKO and Radio UNTAC]’’, *GLOCOM*, 79: 21-24, http://www.glocom.ac.jp/project/chijo/2002_08/2002_08_21.pdf (accessed 18 October 2008).

Yanagihara, Shigeo. 1994. *Kanbojia PKO Taikenki: Nihonjin Senkyo Kanshiyōin Yonjūichi-nin no Hitori toshite [Memoir of PKO in Cambodia: As one of the 41 Japanese Electoral Observers]*. Tokyo: Nihon Shakaitō Kikanshikyoku (Japan Socialist Party Publisher).

Notes for Contributors

Submission of papers: Submissions for review of papers relating to the peoples, societies, and cultures of the Asia Pacific region are welcome, including both the eastern and western shores of the Pacific and its islands. Papers should preferably be submitted electronically to RCAPS at rcaps@apu.ac.jp as email attachments. When submitting articles electronically, please send files in the Microsoft Word format (Word 97 or later). Please include all figures and tables in grayscale, a 150-200 word abstract and about 4-6 keywords. Papers should be in English but a limited number of Japanese papers, with a comprehensive English abstract, may be approved for publication. Authors are responsible for preparing any figures, diagrams, tables, etc. in a form ready to be printed, and for clearing any copyright permission.

Length: As a general guide your manuscript should not exceed 8,000 words in length, given the number of articles competing for space in most issues.

Footnotes: Footnotes should be kept to a minimum. Please number footnotes sequentially with superscript numbers and set Microsoft Word to print them at the bottom of the page.

References: References to works cited should generally be included in the text, rather than in footnotes. These references should give the author, date, and (where applicable) the page numbers, e.g. (Brown 1956: 36-38). There should be a full list of references at the end, sorted in alphabetical order by author's surname and then year, using the following models (please note in particular the use of capitals):

Books:

McCourt, Kathleen. 1977. *Working Class Women and Grass-Roots Politics*. Bloomington: Indiana University Press.

Chapters from books:

Macdonald, Dwight. 1970. "Introduction: Hoffman and His Age." Pp. 11–24 in *The Tales of Hoffman,* eds. M. Levine, G. McNamee, and D. Greenberg. New York: Bantam Books.

Papers from journals:

Molotch, Harvey. 1976. The city as a growth machine. *American Journal of Sociology* 82(9): 50-65.

Edited Books:

Ramos, Frank P., John R. Wizmont, and Clint T. O'Finnery, eds. 1966. *Texts and Nontexts*. Philadelphia: Nonsense Press.

Dissertations:

Muller, Chandra. 1983. "Resource dependency in community based organizations." Master's thesis, Department of Sociology, University of Chicago.

Reports:

Marciniak, Edward, and Nancy Jefferson. 1985. "CHA Advisory Committee Appointed by Judge Marvin E. Aspin: Final Report." (December), Chicago. Unpublished.

Newspapers:

Smith, D. 1951. Modern Kabuki. *The Guardian* (6 April).

Internet sources:

Japanese Ministry of Foreign Affairs. "Japan's FTA Strategy (Summary)."

http://www.mofa.go.jp/policy/economy/fta/strategy0210.html (accessed 17 March 2005).

Foreign titles: References to titles using Japanese script may be accepted for papers submitted in Japanese but for English papers, titles should be transliterated into Roman script using Hepburn, Pinyin or other appropriate recognized systems for transliterating Asian languages. Long vowels in Japanese should be marked with circumflexes or macrons (if available). Translations in English should be provided wherever possible, e.g:

Kuwayama, Takami. 1996. "Genchi' no jinruigakusha: Naigai no Nihon kenkyû o chûshin ni" ["Native" anthropologists: With special reference to Japanese studies inside and outside Japan]. *Minzokugaku Kenkyû* [The Japanese Journal of Ethnology], 61(4): 517-542.

Names: Japanese and Chinese names should usually be given in the normal Japanese and Chinese order with the family name first, followed by the personal name. The major exception is references to published works in which the Western order has been used.