

## **Development or Destruction? A History of Human Development and the Environment**

**August 19, 2007 talk outline by Anne McDonald, Miyagi University, International Center**

Contemporary human activity and its impacts upon the natural environment are a continuum of past actions, the aggregate sum of which is currently negative. Would you agree with this claim or dispute it? How would you interpret human societies' interactions with the natural environment over history? Does human society possess the capacity to reverse the current trends of their negative impacts?<sup>1</sup> Or is eventual destruction our future fate?

The above myriad of questions is at the heart of Environmental History, a relatively new interdisciplinary study established amidst the backdrop of the civil rights and grass-roots environmental movements of 1960s America.<sup>2</sup> For environmental historians, the past – specifically human societies' relationship(s) with nature over time, is seen as a potential key to exploring workable solutions to today's environmental problems.

Despite the grand claims of my talk's title, I won't be taking you on an environmental historian's journey through discussions of continental drift and the determination of the distribution of planet Earth's resources, nor through the arduous settlement of the globe by humankind. Neither will I touch on the centuries of consecutive little ice ages which tested humans' adaptive capacities in response to environmental change. Nor will I attempt to retrace the footprints European Imperialism left on the global ecological map; though it is tempting.<sup>3</sup> Due to time constraints, most of my talk will focus on the Tokugawa Era (1603-1867).

An aside word before I continue. I ask that you make a mental note about our potentially differing Japan-views. My views are based on studies entrenched in Western thought and perspectives.<sup>4</sup> Moreover, my views on nature and human societies' relationship are colored with Christianity and Western science-based philosophies. Unfortunately, I won't have the time today to elaborate on the impacts of religious and scientific philosophies on nature views. Suffice it to say, my views of nature differ from those shaped within Shinto, Buddhist, Islamic among other world view perspectives.

So why talk about Tokugawa Japan? Though by no means perfect in its ecological strategies, Tokugawa Japan is nevertheless often viewed by Western environmental historians as a model of success and hope. Hope, because it illustrates a time in human history when humans reversed some of the trends of the environmental degradation they had set into motion. Nature was understood to be a finite resource requiring strategic and often stringent managerial policies to ensure a state of self-sufficiency and sustainability. *Bakufu* leaders were also sensitive to the delicate balance between

environmental degradation and social unrest. They believed that severe environmental degradation could potentially lead to social unrest, which in turn could trigger their own political demise. They thus set about devising environmental strategies that would not only ensure ecological stability but perhaps more important for the regime, their own fragile political stability.

Pacification and deforestation may seem like odd bedfellows, yet they are a paradox of disarmament of the unified warring states. Human and natural resources no longer necessary for war efforts were diverted to building up a new regime. In the physical sense, this meant the construction of 250 castles and their satellite castle towns.<sup>5</sup> According to Totman, the construction of Edo, Sunpu and Nagoya castles alone consumed 27 500 km<sup>2</sup> of forest. Taking into account that these three castles were grander in scale than the remaining 247 castles, even if the remaining castles consumed 1/3 the forest area, their construction would have amounted to 754 722 km<sup>2</sup> of depleted forest. Add on the numbers of trees felled for temples, shrines, artisanal shops, brothels and other human dwellings that made up castle towns, and the numbers of felled trees reaches exponential limits. Exact area of felled forests aside, the magnitude and speed of deforestation triggering environmental degradation on a national-scale is critical in the case of Tokugawa Japan. So too was the ripple effect of the degradation. Fermenting peasant unrest was reported throughout the nation. Fierce competition to secure resources amidst growing scarcity intensified. Minimum subsistence levels dropped and many peasants found themselves standing at the edge of the precipice of their very existence.

Fear can often be a powerful motivator. For the Tokugawa regime it was the fear of political erosion wrought by environmental degradation and social unrest that moved them into action; thus ushering in a new era often referred to as the greening of Japan. Regeneration became a key word in *Bakufu* policies as they initiated national forestry projects.

‘For every tree felled, plant 1000 seedlings’. One may think this is a slogan for a 21<sup>st</sup> century environmental protection group, but this was a forest regeneration policy slogan written by Lord Matsudaira Sadatsuna in 1650 for the people of his domain *Kuwanahan*, today’s Mie prefecture. One of the keys to the greening of the Japanese archipelago was the two-tiered efforts of central (*Bakufu*) and local (*han*) governments.<sup>6</sup> Although policy directives were sent out from central government, modifications of those policies by local governments were allowed to varying degrees, if not at times encouraged. Maximum production and regeneration were the goals of the *Bakufu*, the detailed machinations of how to meet those goals was often left to the discretion of the local governments. Though it was rarely an amicable union between local and central governments, both were sophisticated political strategists and most often were able to negotiate working solutions to meet the challenges of reforestation. Local solutions to a national problem as exemplified by the Tokugawa

years was an achievement contemporary Japan seems to have overlooked when searching for deforestation and shortage of lumber supply solutions in the mid-20<sup>th</sup> century.

Deforestation was but one environmental challenge faced by the Tokugawa regime. Securing enough food to feed a burgeoning population was added to the national environmental agenda. Self-imposed seclusion and the resulting limiting of imports meant that solutions to produce and procure more food had to be found domestically. Two such solutions were land reclamation projects and fishing, both made possible by technology developments.<sup>7</sup> Carolyn Merchant has written extensively about the link between technological advancements' impacts on human's relationship with nature. Technology, argues Merchant in her theory of ecological revolutions, increases humans' abilities to manipulate nature in order to meet their desired ends. This is perhaps best exemplified by the land reclamation projects on the Shonai Plain.

Available arable land and food production soon reached its limits as had the archipelago's overall carrying capacity. Enter hydrological engineering. Thanks to hydrological engineering and a seemingly endless human labor supply, arable land doubled between 1600 and 1720, an increase of 1.47 million hectares. Shonai Plains made its mark in history as one of the more ambitious long-term reclamation projects. Between 1650 and 1870, 4,600 hectares of marshlands were drained and replaced by rice paddies. If you drive the roads that take you across the Shonai Plains today, it is difficult to imagine that at one time the area was home to a different landscape formed by vast marshland. One could say that the life of marshland flora and fauna was exchanged for that of sustaining human lives.

And thus is the catch-22 of human sustainability. The times may have changed, but the commonality of human sustainability and related issues holds through time. How do we sustain ourselves without totally degrading the natural environment which is in fact our very life source? Hints to workable solutions for today, I believe can be found in the history annals of the Tokugawa years, specifically with regards to forestry policies. Degradation of forests is a global issue which requires partnerships between global, national, local governments and their citizens. Over-arching master plans and integrative policies can be drawn out by global and national policy makers, but it is the efforts of local governments and their citizens who take on the responsibilities of forest managers that are the most critical link in the chain to ensuring sustainability of forest resources. In this regard, as discussed by President Sendo earlier, scholars at Yamagata University, working together with Yamagata citizens to create working solutions for today's environmental challenges by combining historical models with current ideas and technologies, serves as a beacon of hope amidst some of the gloom hanging over today's globe. The spirit of the Tokugawa era lives on at Yamagata University.

## Footnotes

1 For scientific validation of human activity impact claims, refer to the findings of the Inter-governmental Panel for Climate Change 4<sup>th</sup> Assessment Report (IPCC AR4). Working Group I's report clearly states that "atmospheric concentrations of carbon dioxide, methane and nitrous oxide have increased markedly as a result of human activities since 1750 and now far exceed pre-industrial values determined from ice cores spanning many thousands of years."

2 The so-called father of environmental history is Robert Nash who coined the term in his PhD dissertation on wilderness and the American mind. The term went on to receive academic status in 1972 and has since developed into a multi-faceted interdisciplinary study. Environmental historians attempt to examine the bilateral relationship between human societies and the natural environment throughout history. It should also be noted that human societies are not always viewed as the negative perpetrator capable only of adversity. It is not a one-way unilinear relation human societies have with the natural environment. Take for example the case of Greenland. One might wonder why a glacial land is named Greenland? The naming is witness of a time when the Norse farmed the green pastures of the land; thus the name 'green land'. As a little ice age set in about 1000 years ago, unable to adapt to the changing climate conditions, the Norse died off. The Inuit, a human society able to adapt to the climate changes, survived.

3 For those interested in reading a general overview just described, I recommend Clive Ponting's book *A Green History of the World: The Environment and the Collapse of Great Civilizations* (1991). Though I personally prefer Ponting's work, I also recommend Jared Diamond's works *Guns, Germs and Steel* (1997) and/or *Collapse: How Societies Choose to Fail or Succeed* (2005) for beginners to environmental history. For those interested in climate's impacts on human societies, I recommend Fagan's book *The Little Ice Age: How Climate Made History 1300-1850* (2000).

4 For reference, much of my talk is based on the works of Conrad D. Totman whom I consider the foremost Western expert on Japanese Environmental History, in particular forestry history; Susan B. Hanley, an expert researcher of peasant culture and lifestyles of the Tokugawa Era; Arne Kalland, an expert of Japanese fishing history; and John F. Richards, though not a Japan expert per say, the chapter on Tokugawa Japan in his book *The Unending Frontier* (2003), is well-researched.

5 Though a source of frustration when researching numerical data, exact numbers of castles and their adjoining towns differ depending on the English source. The 250 figure is taken from Richard's book *The Unending Frontier*.

6 Another factor in forestry regeneration success was a literate populace and efforts by scholars to disseminate information about their research. Building human capacity is often said to be a critical factor in achieving working environmental solutions. Tokugawa Japan exemplified the power of an educated populace.

7 Depending on time, I may or may not elaborate on fishing issues. Net technology, coupled with navigational improvements and larger fishing boat capacity resulted in increased maritime activity in the form of fishing and whaling. One interesting development of this time is a system of hereditary fishing rights, where not only are the rights determined but fishing grounds as well. Arne Kalland has done extensive research on this and has been instrumental in introducing a Japanese model of marine resource management. For in-depth reading on this subject, I recommend Kalland's book *Fishing Villages in Tokugawa Japan* (1995).