Forest Resources in Northeast Asia and Russia

Naoya Wada

Center for Far Eastern Studies, University of Toyama

In Northeast Asia, there are various natural resources, and one of them is forest resources. If we manage them well, then the forest resources can be sustainable. When we look at forests not just as resources but forests themselves, forests provide us with various ecological services to people living in basin areas and the global community and to the humans as a whole. Concerning forest ecosystem services, there are climate regulation function, and water regulation and supply, soil protection and formation, and protection of biodiversity and forests as place for recreation for people. Forests are not put fertilizers, and plants will grow naturally. So nutrient cycling is one important function. As one of these functions, there are wood and non-wood material products services. Edible wild plants and animals for hunting are included in non-wood products.

When we utilize these resources, we have to pay attention to the other ecosystem services and functions. We must make sure that we don't damage other functions. So, in terms of wood products, we just deforest, and at least tentatively it disturbs environment. But in nature, if there are other trees grown around the area, the seeds will be dispersed on the land, and there will be the regeneration of the trees and forests. We cut economically valuable tree species and sometimes plant tree species that are only beneficial to humans and make mono species forests. Even if we create those forests, they will come back to the natural state with a mixture of different tree species. So, there are ups and downs like damage, restoration and recovery. So, in the long term, forests will generally recover its original functions. It takes time for forests to recover its original function which differs depending on the place and conditions.

As to forestry including deforestation, we have to make sure that we always pay attention to maintain and recover forest resources and functions without affecting ecological functions.

For example, if you deforest a large area, it will significantly damage the natural resilience of the forest, which means that it may not recover or it may turn into a different forest. So, we have to pay attention to deforest appropriately in order to maintain the ecosystem.

When we deforest, one approach required is that we constantly monitor and evaluate on a regular basis in order to see how deforested areas are recovering.

In this project, we would like to focus on Russia because it has the largest forest area in this region with 20% of total forests in the world. According to FAO statistics in 2014, Russia was the largest producer of logs, and China was number one consumer.

In the era of the Soviet Union, the government put high pressure to produce logs. And

then it sharply decreased after the collapse of the Soviet Union. But gradually it's been recovering in recent years.

In 2009, Russia imposed a tariff on export of logs to protect the domestic lumber industry. As a result, it decreased in exports. With these policy measures, deforestation seems to have declined tentatively, but in terms of lumber production, it's been growing again.

From 1990 through 2015, the forest area had not been reduced statistically. We went to Russia and conducted observation on logging area of forests. Because of the heavy logging in the era of the Soviet Union, the wood stock in the same forest area was actually declining. We looked into forest stand age. Trees are becoming gradually younger and younger. So, the forest area is not the only measurement we should look at because this shows a concern that the quality of the forest, although the forest area remains the same.

In Amur forest, the vegetation is recovering 15 years after the logging, and we see a stump and a large tree. This is an economically valuable large tree. And they cut these trees. We look at young trees that are growing after the cutting. The sapling basically means young trees. These recovering trees or re-growing trees are birch trees. These are broad-leaved trees, and that's softer so it doesn't have the same economic value as large. In these new forests, we don't see a lot of saplings in large, and that's a problem.

Apparently, businesses acquire logging rights and then they do an analysis of growing stock in the forest that they are going to log, but apparently estimated accuracy is very low. So they anticipate the stock — there are actually not as many trees as they anticipated. As a result, they cut trees more than they should. The same species will not regrow.

Why is monitoring important? First, we need an accurate estimate of forest biomass and growing stock. Then we also have to monitor after the logging to make sure that the regeneration of the forest is occurring as expected. So we need a flow of monitoring efforts. Also, in Russia, the influence or impact by a forest fire is very significant, and it's degrading or reducing the forest resources. We must monitor forest fire as well.

In this project, it's always difficult for us to monitor such a large geographical area. Utilizing remote sensing technologies combined with a ground inspection and investigation, we hope to do good monitoring.

Just to introduce one example of the effort, there is a satellite view analysis. We take the same area in chronological order and put the images at different times on top of each other so that we can see what time and when logging and forest fire occurred. We can see the history of the particular area of the forest. The coniferous forest in the north was cleared out in the 1980s, and forest fires occurred a lot in the 1990s. So, clearing and forest fires occurred in the same areas. We can probably identify the causes of the forest fires, and maybe that's related to the logging. We hope to contribute to set out measures to prevent forest fires in the future as well.

Center for Far Eastern Studies has an alliance with an academic institution in Amur and in a state in this project. We are planning to start implementing this kind of monitoring that I have been explaining to you.