

# **Forest Environment Education and Local Management**

## **Case Study of Shimokawa Town, Hokkaido**

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### **Abstract**

Sustainability in the fields of economy, society and environment is a point at issue everywhere in the world. In Shimokawa Town, northern Hokkaido, in which forests occupy 90% of the total surface of township, this goal is now being pursued through the actions to promote recycling forestry based on repetitive plantation and felling, industry creation by way of wood processing, self-sufficiency of energy supply by applying wooden biomass, and diffusion of the on forestry environment education for local children. This movement is a crucial model for sustainable local management using forests.

**Key words:** sustainability, recycling, forest, wood processing, biomass, education

## **1. Introduction of how to utilize forestry resource appropriately in Shimokawa , Hokkaido.**

### **1.1. The outline of Shimokawa.**

Shimokawa is located in the northern part of central Hokkaido , Japan's northernmost island. The town has a population of about 3,300, and the forest shares 90% of its land.

In recent years, Shimokawa gets attention from Japanese government and autonomy officials and citizen's group due to the tackle toward utilization of forestry resource for increasing sustainability of the town. Because, in Japan, almost all of city's (except for big cities like Tokyo, Osaka etc.) population is decreasing and becoming issues of economy shrinking and weak social infrastructure, the towns are looking for the way of increasing sustainability of it.

Therefore they expect Shimokawa to be a good example as an model which promotes sustainability in the fields of economy, society and environment .

### **1.2. The effort of the appropriate use of forestry resource.**

Once, Shimokawa's main industry had been forestry and mining. At that time, in about 1960, The town had the largest population, approximately 15,000. Later, however, in 1980s, the mines had been closed. It had caused rapid population decline. So, Shimokawa made a decision of buying forest and advancing forestry and forest industry for growing sustainable economy in the town.

There are three key points on the way of the usage of forestry resource. First, we basically apply the 60 years cycle of cutting and planting trees. Second, we make the most of its resource. We produce various kind of wood products, not only architectural but furniture, craft, and even essential oil. Third, the wood that we can't make any products from, have been energy resource as biomass. For example it is used for heating and hot water supply of public buildings. About 60 % heat energy of public buildings have been made from woody biomass.

## **2. 15-Years integrated forest environment education in Shimokawa.**

### **2.1. Background.**

There are one kindergarten (3 years), one elementary school (6 years), one junior high school (3 years) and one high school (3 years) in Shimokawa. We work on education of forest for children in these institutions. As we continue the effort mentioned above, we should develop the human resources who understand the importance of forestry resource for future. So, we tackle 15-years integrated forest education for local children.

Firstly, in 2006, Forest Life which is NPO established in 2005 in Shimokawa. I am a representative of it now. We started the program to play in forest with kindergarten's children. In the next year, we started to teach children of the elementary school, junior high school and high school with cooperation of Shimokawa's autonomy. Then, in 2009, We made the programs of teaching all schools' children in shimokawa as 15-years integrated forest education. Now, forest environment education has been provided once a month at the kindergarten, once a year at the elementary school, junior high school and high school.

## **2.2. Objectives and how to conduct forest environment education.**

The objectives of Shimokawa's forest environment education are as follows:

- To help the growth of children's mind through learning in local natural environment.
- To help the growth of children to be a human who can think and act toward environmental issues.
- To help the children's deep understanding the importance of forestry resource and local economy yielded from it.

How to conduct forest environment education is as follows:

The autonomy of Shimokawa allots budget for forest environment education for one year, and entrusts the budget to the Forest Life. Then, Forest Life organizes and operates programs with teachers of each grade.

## **3. Practice examples and evaluation.**

### **3.1. The Outline of Shimokawa's forest environment education programs**

The forest environment education programs are organized and operated based on the Learnig About Forests (LEAF) program which originated in northern Europe. LEAF program focuses on the forest resource's values of economy, society, environment and culture. So we try to help the children to be able to understand these values well-balanced. We conduct the program in actual forests.

List of programs in the school year of 2018 is as follows:

#### **<Shimokawa kindergarten>**

April: Taking a walk in spring forest

May: Planting trees

June: A field trip with parents

July: Taking a walk in summer forest

August 1: Craftwork with wood materials

August 2: A field trip in summer

September: Cooking of harvested potatoes with fallen leaves

October: Taking a walk in autumn forest

November: Taking a walk in winter forest

January : Sliding slope in snow

February 1: Sliding slope in snow

February 2: Playing with snow1

February 3: Playing with snow2

February 4: Completion ceremony

### <Shimokawa elementary school>

First graders: Finding their favorite tree

After they read the picture book about forest, they go to forest and find their favorite tree. They draw a picture of the tree and give the name which comes from the characteristics of the tree. Finally the pictures are shared with all classmates.

Second graders: Making their own picture book of trees

This program helps them to understand tree species. They are divided into some groups. Each groups are given some types of leaf and looking for the owner tree of the leaf in the wood. After finding the owner tree, they find out the tree species to edit a simple picture book. Finally they make a presentation of it to the others.

Third graders: Finding out about creatures living in forest

This program helps them to understand biodiversity and creatures' relationships. They find their favorite creatures in the forest, for example tree, flower, insect, mushroom, and so on. And they look up the creatures' name and ecology by using dictionaries. Finally they think over the relationship between "to eat" and "to be eaten". Through these, they notice all creatures have the important role in forest.

Third graders: Finding out about creatures living in forest

This program helps them to understand the growing process of artificial forest. They visit artificial forests at various stages from just after being planted to just before being cut and study how to care of the forests.

Fifth graders: Studying what products we can produce from wood in Shimokawa

They visit some factories, for example, sawmill, furniture making, craft making and so on, and interview workers. Through these, They learn that producing wood products yields industry rather than just selling logs or raw materials.

Sixth graders: Studying wood's characteristics as materials used in daily life

They make their chopsticks by their own hand, and study wood's characteristics as materials.

### <Shimokawa junior high school>

First graders: Practicing charcoal grill

In 1981, a lot of Shimokawa's artificial forest's wood had fallen due to snow damage. The forest workers at the time started to make charcoal by the fallen wood. They study the history and practice charcoal grill with the wood they cut from forest near their school.

Second graders: Short internship of work in Shimokawa

They help worker in each workplace, for example, the forestry association, the timber factories and so on.

Third graders: Listening to people working in Shimokawa

This program helps them to think about their future, through listening to people working in Shimokawa, and interview them.

### <Shimokawa High School of Commerce>

First graders: Studying utilization of forestry resource for increasing sustainability

They study how to promote advancing forestry and forest industry for growing sustainable economy by utilization forestry resource in Shimokawa, as various products and energy.

Second graders: Studying relationship of animal and human

In Hokkaido, there are problems that some animals such as deer and bears damage forest and agriculture. They think over why these problems occur and how we can solve them, through visiting the damaged fields and listening to farmers and forestry workers.

Third graders: making products using woods

This program helps them to understand the process of production activities. They plan and make products from wood. They visit Sapporo, the largest city in Hokkaido, and sell the products.

### **3.2. Evaluation of the programs.**

We evaluate the programs by questionnaire to teachers afterward. For example the questions and scores are as follows (the score numbers mean from 1 as the lowest to 5 as the highest):

Have the goals of the program been shared among the conductors and the teachers ? 4.2

Have the goals of the program been achieved ? 4.2

Have the program respected their own interest and notice ? 4.1

Have the program been done safely ? 4.7

Then we open the meetings talking about planning and improvement programs with each school's teacher and autonomy staffs.

#### **4. Outlook.**

We should be able to make clever decision for sustainability. For the purpose, it is essential to understand the importance of forest resource and to build good relationships with our living.

In Japan, there is a coined word "glocal". This word means "think globally, act locally". Through recycling forestry, appropriate using wood and environment education for local children, We want to be a "glocal" model of sustainable local management using forests.