2. Fostering the “Forest of School”

Preparation of a Flatland Forest and Its Utilization at the Farm of a Senior High School with Integrated Curriculum

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Introduction

Senior High School at Sakado, University of Tsukuba, is at the southeast part of Sakado City, which is located almost in the center of Saitama Prefecture, and is surrounded mostly by residential areas even though a few number of farms and forests still remain in the neighborhood. The school is a senior high school with integrated curriculum having 477 students of both sexes, and is composed of 8 courses such as biological resources, ecology, mechanical technology, mechatronics, food & nutrition, apparel, international distribution and business.

A school farm with an area of 22,230m² occupies more than one third of total school areas. Before the implementation of integrated curriculum in April 1994, the farm had been used for about 50 years as an experimental and training field for the agriculture department and home economics department and used for vegetable culture, flower culture, livestock breeding and fruit tree culture, and had played a role of fostering agricultural successors in the neighboring areas.

Restructuring of school system in 1994 into integrated curriculum was an epoch-making event in adopting a new style of senior high school in Japan to cope with changes such as a decrease in applicants for vocational schools and an inclination to high educational career. At our school farm, we were initially at a loss on how to deal with the dynamic changes, but searched prudently for the style of the farm as a field for integrated education beyond curriculum and also as a field for associated education opened to the region, by transforming from the previous farm oriented to fostering agricultural successors. As a result, a direction was obtained in 1999 as “Present situations of and future plan for school farm utilization at Senior High School at Sakado, University of Tsukuba” (Fig.1). This plan has been gradually realized with some modifications, and we are searching for new style for the farm of a senior high school at present. The challenge to “fostering the forest of school” reported here has been designed and operated to contribute to various educational occasions in and out of the school, as one of cores of our school farm activities in the future.

Why is a flatland forest made in the school farm?

Under the long-term plan announced in 1999, a “fostering the forest of school” plan was made in 2000, and seeds of Kunugi(Quercus acutissima) and Konara(Q. serrata) were sewn during November and December in 2000. Since old days, these two kinds of trees have been grown on flatland forests in the Kanto District for the purpose of supplying materials for firewood and charcoal, leaves for compost, and wood for culturing Cortinellus shiitake. Various challenges including the culture and maintenance of the trees have been started this year. We are proud of this trial to newly prepare a flatland forest, which is rapidly disappearing from the neighborhood, and maintain and manage it, in terms of the following meaning. In the circumstances where the value of a flatland forest is talked about as an environ-
mental green zone in the city or from emotional aspects, it is important to reevaluate intrinsically the function of a flatland forest as an agricultural forest. The existence of a flatland forest in the farm of the school with integrated curriculum is quite appropriate as a new challenge to make young people, who will shoulder the next generation, study the basis of agriculture and experience a recyclable and sustainable life style. We expect that this learning circumstance will function as a place to foster talented people, who can think from intrinsic viewpoints about future energy problems, environmental problems and food problems. In addition, we consider that these functions which our farm potentially has will be effective not only for our school but also for various social educational chances at primary schools and junior high schools and the like in the region.

**Preparation plan and utilization plan**

Regarding the preparation plan and utilization plan of the flatland forest, we received cooperation of Professor Tohru Nakamura at Institute of Agriculture and Forestry, the University of Tsukuba. In March 2000, Ms. Sachiko Kameda, then a junior at Prof. Nakamura’s laboratory, was assigned to engage in this project as a graduation thesis, and started planning this project together with the teaching staff of Agriculture department of our school. After a year of investigation and research, she presented a plan as her graduation thesis in March 2001 (Fig.2). During the past one year, Ms. Kameda conducted vegetation investigation and hearing investigation on the traditional utilization of agricultural forests in the neighborhood, as well as investigation on the consciousness of the students and teaching staff of our school toward agriculture and a green tract of
land. She also made efforts for the preparation and arrangement of the “forest of school.” This was the first trial that a student at the University of Tsukuba engaged in graduation thesis with target on the farm of our school, which gave the teaching staff and students interesting, meaningful and exciting experiences. We hope to have such chances in the future again.

Educational and learning activities using the flatland forest of the school

The seeds of Kunugi and Konara started budding sporadically around April this year and the trees are growing well. The forest has been used at school in various ways since this year. In particular, the following three subjects are actively utilizing the forest.

-1 Greenery science

Greenery science is opened as an elective subject related to agriculture, which is planned to learn various roles and functions of a green tract of land, and characteristics related to general plants used for afforestation and methods for culturing and maintaining them. This year 26 students selected this subject.

The lesson is composed of indoor lecture and outdoor practice. Since most students did not have agricultural experiences, teachers intensively explained the roles of a flatland forest, with focus on the utilization of it by farmhouse. In addition, we explained that enormous time is required for the recovery of disappearing greenery and cooperation beyond generations are necessary for this purpose, and self-motivated activities without being a bystander toward various environmental issues are important.

In the outdoor practice, each student takes care of an area of 4m² (2mx2m) at own responsibility and conducts a vegetation check in the area (making a list of species in the area and measurement of the height and plant coverage rate of each species), a growth rate check on Kunugi and Konara (measurement of tree height and leaf number), and weeding work, continuously at a rate of once a month. With increasing consciousness on environmental problems, tree-planting activities are vigorously carried out nationwide. However, continuous experiences of fostering a forest at school like the case of our school, different from temporary experience, are considered much more effective because they make students realize the load of actually growing greenery and the importance of cooperation with surrounding people.

In the course of proceeding greenery growth operations such as investigation and weeding, we were initially anxious about on whether students would actively tackle the operations that accompany hard labor sometimes. However, after starting the operations, students took really active attitude by imaging the figure of the forest 10 or 20 years afterwards. Some students voluntarily came to the school on holidays for weeding and
watering, which gave us hopes for the future.

-2 Amenity design

Amenity design is opened as an elective subject related to agriculture in the same way as greenery science, and planned to learn designing methods for comfortable conditions in garden-oriented urban planning. This year flatland forest was adopted as a theme titled “to think about thicket of associated trees in Sakado from the viewpoint of local character” as a unit “amenity of local character” among amenity design. This unit composes of totally 8 hours, 4 times of 2-hour lesson. This lesson does not actually use the school forest, but by learning this unit it is expected for students to deeply understand the meaning of preparing an agricultural forest in the school.

In the first lesson, students firstly learned a space with local character by taking up towns and spaces with rich regional character in various parts of the country as examples. Later, scattering flatland forests existing near the school was taken up, and by comparing them with those in old maps, traditional living near Sakado was discussed. In addition, the present situations of suburban agricultural villages and the decrease and devastation of flatland forests were learned.

In the second lesson covering the 3rd-4th hours, we went out of school and actually experienced flatland forests. By choosing typical 3 places among flatland forests remaining at the south of the school, we entered the forests after receiving the consent of owners, and realized their conditions and what kind of impression they gave, while taking a memo at each place. The features of the three flatland forests are as follows.

Forest A: It is used for agricultural purpose at present and well tended, and it commands an open view.

Forest B: It is used as a public park at present and part of trees were cut for the purpose of installing playing tools.

Forest C: It is an abandoned agricultural forest, in devastated condition with weeds and bamboo grass covering the yard. View is not good and rubbish is littered.

Generally, the reaction of students was favorable for Forest B, and most students badly evaluated Forest C as was expected. A few students favorably evaluated Forest A from the viewpoint of amenity, but it seems that most students understood that a flatland forest can be protected from devastation by being maintained as an agricultural forest.

In the third and forth lessons covering the 5th-8th hours, students are scheduled to design how to use a newly designated actual flatland forest. This flatland forest is located in the neighborhood of a primary school and residential areas in Sakado City, and has been shut off against people’s entering with a fence after being stopped of agricultural use, even though weeding is still continued. With referring to challenges related to the maintenance of flatland forests being conducted in various places in the country, students are asked to design a plan considering the amenity of local character. After completion, students will have ideas of all students in common by means of presentation, and will finally end the lesson by reconsidering their each plan. In this utilization plan of an unused flatland forest, it is expected for students to choose re-utilization as a traditional agricultural forest peculiar to the region, and consideration for a neighboring primary school and residential areas, but on the other hand fantastic original ideas are also welcome.

-3 Project study

Project study is an obligatory subject chosen by third-grade students, in which each student sets a theme by oneself chosen from interesting subjects obtained through various experiences in high school life or the study of elective subjects, and conducts investigation and research and gives a presentation on the theme. In the project study this year, a female student is conducting research on a theme “Flatland forest and human life.” Initially her interest was related to greenery in urban areas, but she became interested in a flatland forest and its utilization from the study of greenery science and amenity design she learned this year and chose such a theme.

In the case of this project study in the same way as amenity design, she does not directly use the school forest. But, she obtained an interest in flatland forest and its utilization from the lesson of greenery science that utilized the forest. From
the lesson of amenity design, she also knew that decline of agriculture near the school devastated and decreased flatland forests as a green tract of land, which gave her a chance to study the present situations of flat forests and the relations with humans through agricultural utilization.

As of July this year, the direction of the research and investigation method has been decided, and she has just finished hearing investigation at farmhouses in several areas. She has a plan to analyze the present situation of flatland forests and the relations with humans from the results of hearing investigation and the contents of the study using literature and the Internet, and to find an ideal form of a flatland forest in the future based on her own idea.

When she and a teacher jointly visited a farmhouse the other day, the farmer told us like this. “People who talk about the protection of nature, greenery and farms are the people who do not have agricultural land. People who are actually making efforts to preserve land are we who have the land.” She seemed to have been impressed by this word.

**Conclusion**

The preparation of the “forest of school” at our school is just in the initial stage and its land is still limited. However, we students and teachers are dreaming together of the future image of the “forest of school” such as charcoal production and Shiitake mushroom culture, as well as reunion at the school forest after graduation by accompanying the children of each other’s.

We sometimes feel anxious about global environment in the future when this forest has grown larger. However, if steady activities beyond generations are continuously carried out everywhere, it will expectedly lead to the solution of worsening environmental problems. We teaching staff together with young people will make efforts in fostering the “forest of school.”