

The Significance of Rural Land Use Planning for the Conservation of Nature and Culture

Teitaro Kitamura*

<Contents>

- I. Introduction
- II. Conservation of Nature and Culture in Rural Areas
- III. Principles of Regional Order
- IV. Scenario for Problem Solution: Rural Settlement Sphere
- V. Rural Land Use Planning
- VI. Concluding Remarks

Abstract

It is not easy to conserve nature and culture in rural regions, because rural areas are so huge, covering over 90% of the earth's land surface.

This paper first describes the author's views about how to cope with the conservation of nature and culture in such huge rural areas. The significant point is to consider hierarchical methods of conservation, ranging from macroscopic to microscopic. Conservation is ultimately impossible if rural areas are not taken into consideration as a whole. It is important to bring order to the whole when working with rural regions. The paper gives the principles of regional order.

The idea of a rural settlement sphere is proposed for the structure of rural regions. A rural settlement sphere is a sphere within a 20~30km radius centering on a local city, and this is a unit of living sphere. The construction of rural settlement spheres becomes a basis for sustainable development for rural regions. Rural regions cannot conserve nature and culture until a regional structure is constructed.

*Tokyo University of Agriculture

Last, the methodological base of land use planning which becomes a basis for making rural settlement sphere is described. It includes major land use planning, middle land use planning, and minor land use planning. The hierarchical construction of land use planning is important. The base of conservation of nature and culture cannot be laid until land use planning is definitely measured. Proceeding steadily with land use planning is an important way of conserving the global environment.

I. Introduction

As the 20th century, which centered on the development of science and technology, was ending, human beings began to be aware of the importance of nature and culture. Global environmental issues that had never before been faced are taking center stage in the 21st century. This big subject seems to be one that must be dealt with on a global level, one beyond the nation and the individual. It is, however, fundamentally not an issue of national or international society, but one of community.

Among global environmental issues, the following all involve rural areas:

- 1) Deforestation
- 2) Desertification
- 3) Salinization of agricultural land
- 4) Sprawl
- 5) Coastal areas
- 6) Acid rain and water resources

If we cannot resolve such issues in rural areas, human society, including urban society, will collapse. The first step for human beings to take for the solution is indeed reflected in the title of this symposium. The author would like to pay his respects to the executive committee for choosing such a title. So as to contribute to the symposium, this paper describes the significance of rural land use planning, which is regarded as the first consideration in our activities.

II. Conservation of Nature and Culture in Rural Areas

We use the words "nature" and "culture" to describe the world, including rural areas, but there exist various natures and cultures in the world. Accordingly, there are also various ways of conservation applied to each "nature" and each "culture," and planning will differ according to the type.

The author's view is described against the background of the Asian monsoon area to which China and

Korea belong. The monsoon area is blessed especially with water resources from the global viewpoint. As a result, a rice crop culture developed in this area which supports over one billion people. Even so, rural parts of the monsoon area vary widely, including both flat land and mountainous areas. The cultivation of terraced fields in mountainous areas and that of single-crop paddy fields in flat areas take quite different approaches to nature. The objective of the former is to prevent landslides; of the latter, to prevent flooding.

In ancient times, irrigation disputes influenced the formation of society in rural areas, and this changed the culture. It is a natural consequence that the basin area peculiar to rice cropping society formed a cultural area. Today, we talk about conserving nature, but in the past, farmers battled with severe nature in their rural areas. They tried to balance nature and in this way secured their living.

In modern times, the development of science and technology made it possible to control nature to some extent. This, perversely, caused nature to become unbalanced. Nature was destroyed, and conservation became necessary. Some achievements in maintaining the balance of nature in rural areas are seen in the Edo period, the 17th~19th century, in Japan. Kasushi dike and Shigen dike are examples.

What should be considered when plans are made for the conservation of culture under various natural conditions? The aim of conservation is definitely a balance of nature, not a battle against nature. The conservation of nature in rural areas is balancing human social activities with nature. Culture is the process of creating the balance. Thus, plans should be made to achieve a human society well balanced with nature. The starting point of planning for the conservation of nature and culture is the point of contact of human beings and nature. The ordered formation of rural areas is a way of conservation. Accordingly, planning should be measured against the principle of securing regional order.

III. Principles of Regional Order¹⁾

What is the principle of regional order for planning? The author identified the following eight principles of regional planning methodology.

The pilot concept represents the policy of the plan – that is, its self-direction (objectives), and in the planning stage the goal is imaged according to the circumstances of each region (figured vision). In other words, it establishes the rules of regional development with the future in mind. In this process, it is not development only of special industries but ordered and balanced development of the whole region

1) The author got the idea for the term “regional order” from the German word “Raumordnung”. But his concept of regional order is not the same as that of the German word. The author arranged the rules of regional order described here on the basis of the regional structure theory.

that people want; this means, in brief, that establishment of the vision in the pilot concept corresponds to the establishment of a policy of comprehensive order for the real region.

The general principles of order in the region, which serve as the fundamentals in proposing a concrete pilot concept, are classified into eight categories derived from the regional skeletal structure model.

Principle 1 (Subjectivity condition)

To enrich the organization as the regional subjectivity

It is necessary to enrich the regional organization as the main actor in developing the region by comprehensively re-considering political/administrative organizations, industrial organizations, and organizations related to living in the life space of the region.

Principle 2 (Environmental condition)

To establish conservation of the environment and harmonize it with development of natural resources and industries

It has already been proved that irresponsible development of natural resources is wrong. But development is indispensable for human existence. Hence, people must try to develop resources in harmony with the conservation of the natural and the human environment. It is also important to reasonably develop resources, considering the regional environment, the existing resources, and the possibility of development. Accordingly, to harmonize conservation of environment with the development of resources, sufficient attention must be paid to the fact that they are indivisible (Table 1).

Principle 3 (Spatial condition)

To systematize the spatial order of regional structure

To systematize the spatial order of the region, the skeletal structure of the region should be fixed spatially. The main objective is to establish order in land use, by clarifying the central area of the region, the sub-planning region, and the development axis as a framework for the region. In other words, the

Table 1. Environmental Conservation and Development of Natural Resources

| | Natural Aspect | Human Aspect |
|--|---|--|
| Prevention of environmental destruction | Prevention of natural disaster | Prevention of pollution and protection against disaster |
| Environmental conservation | Conservation of natural environment (enrichment of natural ecosystem) | Conservation of human environment (historical landscape, cultural assets) |
| Development of natural resources (including prevention of irresponsible development) | Development of natural resources (energy such as gas, petroleum, and hydraulic power) | Development of human resources (education of talented labor forces, technological development) |

goal is to construct a basis for balanced development of the whole region without concentrated regional development in the specified area, and this process also involves defining locational arrangements (habitant independence) between urban and rural communities.

Principle 4 (Population condition)

To create a balance between industries and between regions with respect to population and labor force

Aiming at proper scale and locational arrangement of regional population, technical knowledge of the labor force (employment) at each level of the society should be improved, and a balance between industries and between regions should be defined systematically.

Principle 5 (Economic condition)

To ensure balanced circulation of economic commodities

This rule indicates the need to secure balances among four economic aspects, as shown in Table 2. First, from the personal viewpoint, basic income should be secured and basic daily material resources (including food and water) should be guaranteed at each level of the region. Then, from the viewpoint of the whole region, measures for balanced circulation in the economy of finance and material resources should be decided upon clearly.

In today's economic environment, greater importance is, if anything, attached to financial balance than to material balance, resulting in an imbalance of material resources. This may be the beginning of today's global environmental problems, and it is important to place special emphasis on economy of material resources in the future.

Principle 6 (Infrastructure condition)

To establish a circulating use system for resources in the region

Development of natural resources has often been done independently of regional development. Water resources, energy resources, and land resources (including biological resources) have been developed individually, and waste recycling has been ignored. In the future, utilization of resources should be comprehensively grasped, and a resource recycling system in harmony with human activities should be established. Hence, with the development of natural resources as a premise, it is necessary to complete various kinds of infrastructure: point facilities such as schools, hospitals, homes for the aged, and public

Table 2. Circulation Balance of Economic Commodities

| | Finance | Material Resources |
|---------|--|---|
| Person | Assurance of personal income | Assurance of personal demand |
| Society | Circulation balance of financial economy | Circulation balance of material economy |

halls; linear facilities such as roads, canals, communication facilities, waterworks, and sewerage treatment plants; and area facilities such as golf courses, farm land, and housing complexes based on levels of human activity.

Principle 7(Human Activity condition)

To complete systems of production/living/public activities

In the course of industrial development, great importance has not been attached to human life. But in the future, it will be important to establish not only balance between industries but also mutual relationships between the production system, which is made secure paying sufficient attention to industries in cooperation with human life, and systems related to human life. Moreover, it is necessary not only to develop production systems (agriculture, forestry, marine product industry, manufacturing, commerce, tourism) and living conditions (housing, education, medical care, welfare, recreation) but also to establish systems of maintenance and management for public activities which coordinate the two spheres (public offices, agricultural cooperatives, transport facilities, water-use facilities, supply-disposal, etc.).

Principle 8(Planning condition)

To establish the subjectivity of planning administration and the basic policy of regional development

In contrast to the principles for formation of order in the regional structure (objects) described in Principles 1 to 7, this principle covers the authority (administrative body of planning) which promotes formation of social order. The region is generated by people, and the intentional actions of people change or develop the region. Therefore, "regional order" cannot be established unless the leadership moves forward with ways to manage the regional body. Principle 8 shows the requirements of regional leadership, and has three sub-divisions as follows:

① Independence of the subjectivity of planning administration including resident groups (planning administration)

The authority of the planning administration according to the phase of regional development should be made clear.

② Establishment and management of regional planning (planning objectives)

The administration should develop a plan supported by the planning objectives, implement it, and manage it.

③ Implementation of means for planning in regional development (regulation program and project implementation)

Various projects and controls supported by the plan should be executed.

IV. Scenario for Problem Solution: Rural Settlement Sphere

The next question is what system of settlement will be seen in rural regions in the future. The author proposes the 'Rural Settlement Sphere (RSS)', which is defined below. Combining it with the geographical basin sphere, this concept can be used to restructure rural regions suited for the 21st century.

(1) Starting point of the scenario: Global environmental conservation unit

Global environmental issues are divided roughly into urban and rural types. Urban issues include global warming, destruction of the ozone layer, acid rain, and others due to warming gases exhausted from industries, cars, etc. These problems could be prevented by tracing the origins of their occurrence and stopping the activities that cause them. Rural issues include agriculture/rural issues such as lack of water resources, desertification, forest destruction, and food crises. These problems cannot be solved only by such simple measures as prevention by tracing the origin of occurrence. The solution, quite different from that of urban type, is to approach the problems comprehensively and take measures to solve them together by planning.

That said, it is rather difficult to approach global environmental issues of the rural type in one united way on a global scale. However, it is possible and necessary to delimit a certain area and to approach various issues within the area in a united fashion and seek general and comprehensive solution. Then, there is the question of how to choose a certain area.

For our discussion, areas are selected based on the following three viewpoints.

1) From the viewpoint of agriculture/rural activities

Two units are considered: the traditional rural village and a slightly larger unit -- namely the area within which it is possible to come and go on foot. Such units, however, are too small when issues such as ecological balance and conservation of water quality are involved.

2) From the viewpoint of daily activities

Human activities in the rural community traditionally were limited to the area within the rural village or the area within which it was possible to travel on foot, extending to several villages. In today's Japan, however, the sphere that is commutable by car has become the sphere of human daily activities. The sphere of 20 to 30km seems to be a logical unit from this viewpoint.

3) From the viewpoint of unified independence of the region

It is important that the area dealt with as a whole should have independence historically to an extent, and also that its regional peculiarities be preserved. This is because this regional unit holds the possibility for its inhabitants to act in unity in the future.

From the above-mentioned viewpoints, even regions which do not form a 20- to 30-km sphere centering on a local city will make the sphere a regional unit when car transportation is sufficiently well developed. If the viewpoint of regional independence is added, the region will be expected to form a human living sphere securing, continuously in the future, regional unity without any major changes as a single unit.

When they maintain regional unity, inhabitants will be able to conserve the environment within the sphere. If each region conserves its own environment as a unit, in a comprehensively planned fashion, the time will come when environmental conservation of the whole world will be attained successively. From this point of view, the author proposes such a regional unit, "a global environmental conservation unit" (GECU), as an important means of working for global environmental conservation.

(2) Rural Settlement Sphere

The proposed GECU equals, in other words, the "Rural Settlement Sphere" (RSS). Namely, it is a living sphere within which rural inhabitants feel at ease and in comfortable circumstances and settle down. In the living sphere, the objective is to harmonize resource development with environmental conservation, to develop industries in balance with agriculture, to achieve stable income for inhabitants, and to secure their living. RSS is a new rural vision. The concept is summarized below.

The 21st Century Rural Vision? Rural Settlement Sphere(RSS)

RSS means a rural living sphere constructed with the following five elements.

① Space – The scale of space of living sphere is regarded as the commutable sphere by car (daily living sphere by car (DLSC), about 20 to 30km sphere). Within this sphere are located about 10 daily living spheres commutable on foot (DLSF) or by bicycle, a sphere of about 4km, within which about 10 to 15 rural villages are located.

② Population and Society – Within the sphere, some of the young people (20 to 40 years of age) engage partially in farming, but most work for secondary and tertiary industries, while older people (50 to 70 years old) work mainly in farming (as the regional management labor force). Within these systems, several different life styles are established.

③ Resources – Within the sphere, in terms of energy saving, clean energy, and resource saving, an economic system based on self-sufficiency in a new sense is established: it includes self-sufficient food/livestock feed, recycling of wastes, and development of local energy sources. At the same time, a system of resource use supported by material circulating systems should be established.

④ Environment (Natural and Cultural) – Urban people and rural people within the sphere work as one united body to conserve the whole sphere ecologically and maintain its beautiful natural environment. At the same time, they create a cultural environment based on a love of their home and its regional peculiarities. Furthermore, urban and rural residents within the sphere cooperatively create a system of environmental conservation to deal with problems. This sphere is also a GECU(Global Environmental Conservation Unit).

⑤ Industry and Living – Urban communities specialize in the function of commerce and industry, while rural communities specialize in agriculture and natural recreation. Against the background of an environment rich both naturally and culturally, a balanced system of human activities is set up, arranging circulation of materials for the activities of industry and living.

RSS is a 'planning region' for national/regional policy and also a 'GECU' for environmental policy. The aim is, for each planning region to maintain balanced space use, to distribute population properly, to use regional resources in a cycle, to keep the balance between industry and living, and to conserve and form an environment rich in nature and culture, in which a new rural community is created and the whole national environmental conservation is secured. The concrete image of the RSS is roughly as

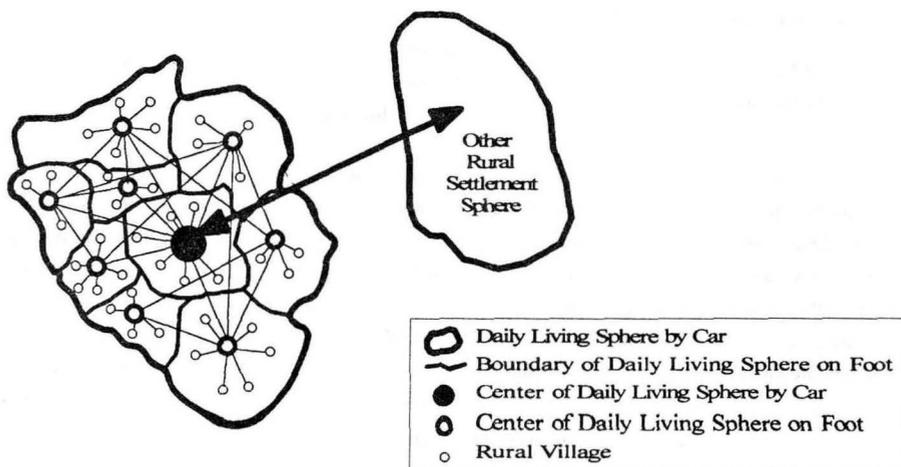


Fig. 1. Configuration of Rural Settlement Sphere

follows.

The RSS is a commutable sphere centered on a local city. The concrete image indicates a daily living sphere by car, as shown in Fig. 1. The sphere includes about 10 daily living spheres on foot, and 10 to 15 rural villages. The RSS is formed to establish a network structure among these living spheres, maintaining the hierarchical structure of daily living spheres on foot and rural villages. Human life within the RSS emphasizes social coexistence and living together with nature. And yet the RSS is not closed, but is provided with links to the surrounding area, including big or middle-sized cities.

When an RSS is created, the local city is improved, industry and commerce are promoted, and opportunities for employment increase, as shown in Fig. 2. In addition, the residents can lay out Kleingarten (citizen farms), build urban-style recreation facilities, and improve cultural facilities to form a place for a tasteful urban life. In rural communities, meanwhile, the residents improve a system of village farming and establish an agricultural system so as to stabilize the whole RSS. And they can offer a stable supply of fresh vegetables, rice, etc., to local city residents. Furthermore, they build a system to manage forests together with urban people to develop natural recreation as well as to promote forestry. Moreover, within each RSS, large-scale medical facilities can be established and improved, while at the

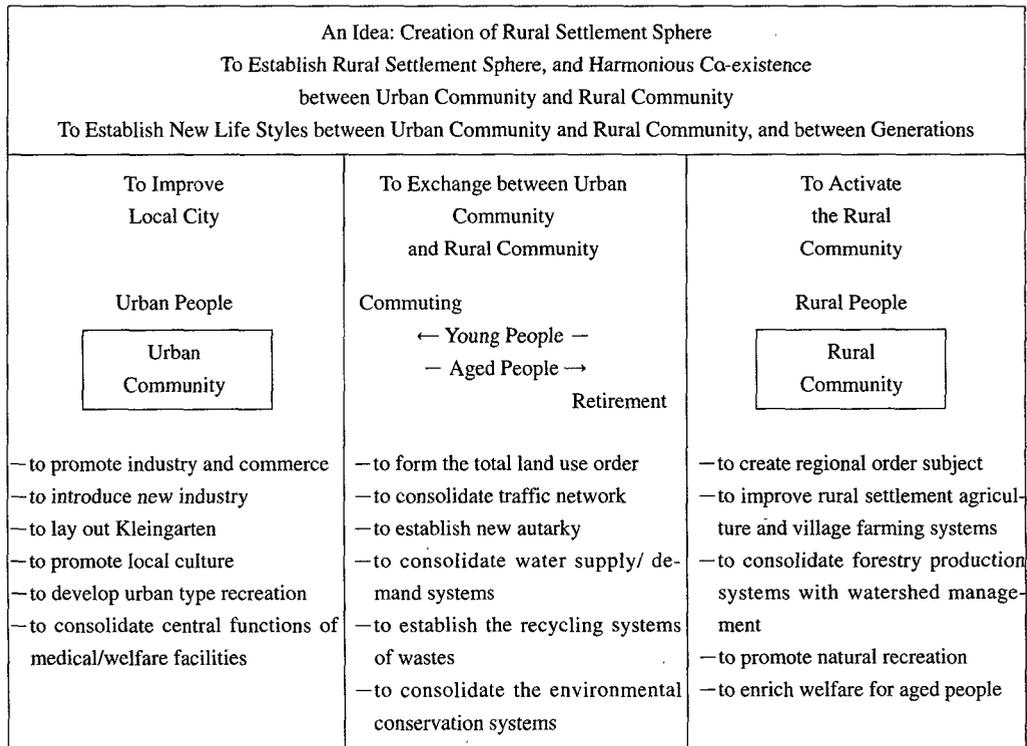


Fig. 2. Creation of Rural Settlement Sphere

village level facilities for older people can be built where medical equipment and welfare facilities are provided.

Furthermore, by expanding the traffic network between the whole rural region and the local city, the RSS can stabilize a new self-supporting system for waste recycling, environmental conservation, and land use. Through such exchanges, urban communities and rural communities could establish a system of living together. In improving traffic network, not only roads for automobiles but also trails (nature hunting road, cycling road, etc) are built leading in all directions, offering opportunities for natural recreation and green resources management.

Measures for unified development of local cities and the surrounding rural communities, based on the concept of RSS, will extend to establishing places of employment, to securing labor for agricultural works, and to improving the welfare of the elderly. The RSS can serve as the basis for a concrete way to promote global environmental conservation.

This RSS would be a place where human beings can to settle and feel at rest, and develop a sense of the world as home town, where an environment gentle to human beings is managed by all, maintaining a self-sufficient system as much as possible. Within the sphere, when they are young, they work in the city, and when they become old, they work in the rural community under the shining sun and live a recreational life. Moreover, there is a world rich in culture. The RSS is the ultimate world where such urban and rural communities are unified.

(3) Scenario

The idea that creating the RSS is equal to developing the GECU is an important proposal toward the solution of approaching agricultural/rural problems. It gives not only definite orientations for “rural community development” (RCD), but also a strategy for sustainable agricultural productivity.

Establishing a strategic methodology for making an independent agricultural sphere of about 20 to 30km centering on a local city is regarded as a methodological basis for maintaining sustainable agricultural productivity. Here, the scenario is definitely presented. The first aim is to establish an RSS – that is, to form a GECU. The scenario is shown in Fig. 3.

Forming a GECU, as mentioned earlier, is, in a new sense, constructing a daily life sphere from the viewpoint of RCD. It is also creating a commuting sphere for rural inhabitants. Once, in a rural community, the walkable sphere was the daily life sphere, but in the future a new RSS (commutable sphere) which forms about ten walkable spheres will become an independent rural sphere. A rural community (walkable sphere) becomes a unit of a large rural sphere or GECU. A ‘rural community’ is a union of some rural villages. First, environmental conservation of rural villages and the attainment of rural environmental conservation is achieved. Activities by rural inhabitants themselves, in the true

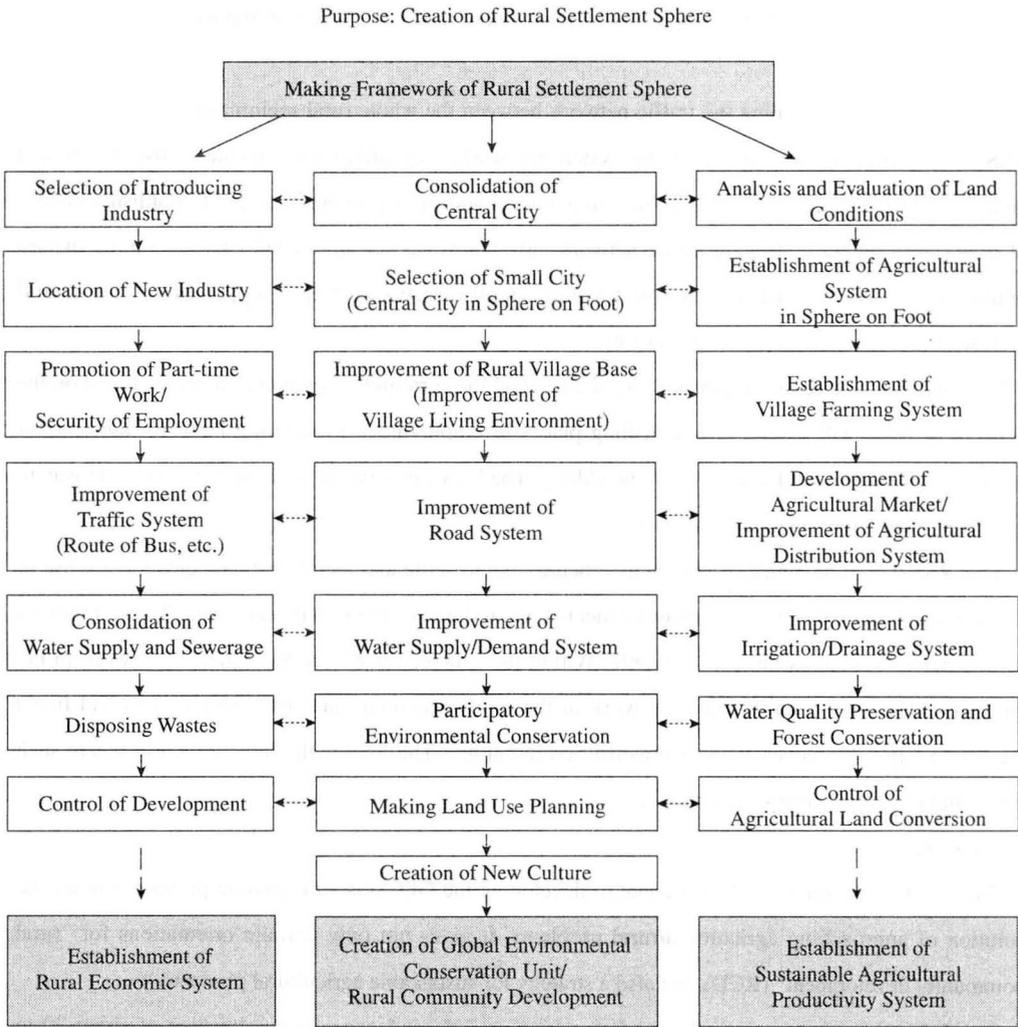


Fig. 3. Scenario of Making Rural Settlement Sphere (Global Environmental Conservation Unit)

sense of the word, establish a safe and affluent living sphere (living space) for rural inhabitants. The suitable RCD is, in other words, global environmental conservation activity itself; and it establishes a system of sustainable agricultural productivity from the viewpoints of agriculture.

Conservation of nature and culture in rural areas is not attained until such an RSS is constructed. Nature and culture cannot be conserved only with separate plans, but can be conserved by the construction of RSS, taking into account the principles of regional order mentioned above.

V. Rural Land Use Planning

It was mentioned earlier that the balance of human society and nature is significant to conserve nature and culture in rural regions. For that, it is indispensable to achieve regional order. The rural settlement sphere (RSS) is proposed as a system for rural regions that can work to conserve nature and culture in rural areas. A regional support structure is necessary to bring order to land use in rural areas, and this means the necessity for establishing rural land use planning.

5.1 Regional Planning System in Rural Areas

The planning system is broadly divided into two types in making the rural settlement sphere and conserving nature and culture in rural areas.

- ① Plan at the regional planning level
- ② Plan at the city and rural planning level

The former divides the objective area into parts (sub-regions), and planning targets are set up for each part. The latter is mainly involved in developing land use plans. If we divide them based on the maps used in planning, the former is applied to planning the area using a map of a smaller scale than 1/25,000~1/50,000. The latter is applied to the area using a map of a scale bigger than about 1/10,000. Thus, land use planning at the regional planning level is a macroscopic land use planning.

5.2 Rural Land Use Planning

The system of land use planning is described as follows.

5.2.1 Classes and Systems of Land Use Planning

For the correct recognition of land use, it is necessary to divide land use into three classes: major land use, middle land use, and minor land use. Accordingly, land use plans should also be divided into three classes: major, middle, and minor land use plans. It should be noted that introducing the new concept of middle land use plan contributes to clarifying the technical system of land use planning.

(1) Classes of land use

Although hardly perceivable when seen macroscopically, it is known that the concept of land use itself depends on the unit of land use classes when we examine it microscopically. The image that each of us has about land use is based on such images. This fact is often left unrecognized. For example, the image of land use is naturally different when a small-scale region like a rural village is considered and when a large-scale region like an entire prefecture is under consideration.

Hence, it is important to have a firm recognition on the unit of land use class when considering land use. For example, Black (1931) proposed that land use should be divided into major land use, e.g., industrial land use and agricultural land use, and minor land use, like that in industrial areas, in considering kinds of land use for each industrial type. From our experiences with land use plans, however, the author proposes to divide the unit of land use class into the three hierarchical classes (called "land use classes" hereinafter) listed below, different from Black's:

- ① Major land use: the unit of land use class is "region"
- ② Middle land use: the unit of land use class is "area"
- ③ Minor land use: the unit of land use class is "lot"

When investigating land use for a large-scale region like a large city or an entire prefecture, people build up images of land use through ideas such as industrial region, urban region, agricultural region, etc. This is the major land use, the similar concept to Black's major land use. Opposite to this, the case when we consider land use for each lot corresponds to the minor land use. Middle land use, corresponding to the intermediate level, takes the unit of area and classifies land use into agricultural area, community area, forest area, etc.

(2) Major land use plan

A plan of this class takes the unit of "region" and uses maps on a scale of 1/25,000 or smaller. Typically, for a land use plan of county sphere,²⁾ maps of a scale of about 1/50,000 are used. All land use plans for a large city and a planning region on a scale of a county sphere or larger belong to this class. The land use plan of this class is needed for regional planning level in the narrow sense. The main issue for this class of land use plan is to determine types of land use and areas for each of them based on the varieties of human activities (the planning targets of each sub-region, e.g., number of factories, number of farming households, and amount of production). Therefore, the main issue of the major land use plan is to determine the size of land use areas in each unit of the region, such as agricultural region and urban region. Of course, each region contains a mixture of urban area, agricultural area, industrial area, and mountain/forest area, which is considered middle land use. At present, no institutional background is provided for the major land use plan. But it is important to contribute to improvement of the urban plan and the agriculture promotion area plan³⁾ at the county sphere level by actively establishing the concept

2) County sphere in this paper corresponds to broad municipal sphere, which means the whole areas of several municipalities, that is the upper planning regions of municipalities in Japan.

3) Each municipality determines "agriculture promotion area" based on Agriculture Promotion Law in Japan. Each of agriculture promotion area should establish a plan for the area called "agriculture promotion area plan". "Agricultural area zone", in which the diversion of agricultural land to residential land is prohibited, could be

of middle land use plans.

(3) Middle land use plan

A plan of this class takes the unit of “area,” and uses maps on a scale of 1/5,000 to 1/25,000 – as the standard, the scale of 1/10,000. The middle land use plan is determined according to the target of the plan in each sub-region set up in the major land use plan, and makes itself the precondition for the minor land use plan.

This plan sets up an area type like the community area or the agricultural area to be a unit for the type of land use. The “area” here denotes “a group of lots for each purpose of use, which incorporates land of several lots appended with roads and waterways, but not land of each lot.”

Therefore, this land use plan is almost equivalent to the German land use plan (Flachennutzungsplan, F-Plan). This is determined for each municipality level or each old municipality in a large municipality. This size of an old municipality (about 3000 ha) is derived from the technical restrictions of the land use plan at the area level. This land use plan is the key to future rural plans.

In the Japanese scheme, this level of plan is compatible with the urban plan and the agricultural land use plan. But these plans in Japan have insufficient precision compared with the F-Plan in Germany. The key to solving our present problems is to set up middle land use plans at the level of the old municipality in relation to various urban improvements and rural improvements.

(4) Minor land use plan

A plan of this class takes the unit of “lot,” and uses maps on a scale of 1/500 to 1/2,500– as the standard, the scale of 1/1,000. The lot here is the land unit for the type of land use based on the “lot” used in property registration, and does not strictly indicate the lot when it has no direct relation with land ownership. The legal land use plan cannot be confirmed, as is required for implementation of the Building Standard Law, the Agricultural Land Law, etc., until a minor land use plan is set up for each lot based on the middle land use plan. When we limit this within a village area, it is equivalent to the German lot plan (recently named the District Plan: Bebauungsplan, or B-Plan), which specifies how each lot should be used and sets the borders. This plan constitutes the key for minor rural planning at the agricultural village level.

The confused order of land use in Japan has been largely caused by the fact that land use, based on laws such as the Building Standard Law and the Agricultural Land Law, has not been systematically regulated but is treated differently case by case, because of the incomplete legal minor land use plan. The only way to form a complete order of land use is to complete the legal land use plans at the level of

determined in the agriculture promotion area. Land improvement projects could be executed only within the agricultural area zone.

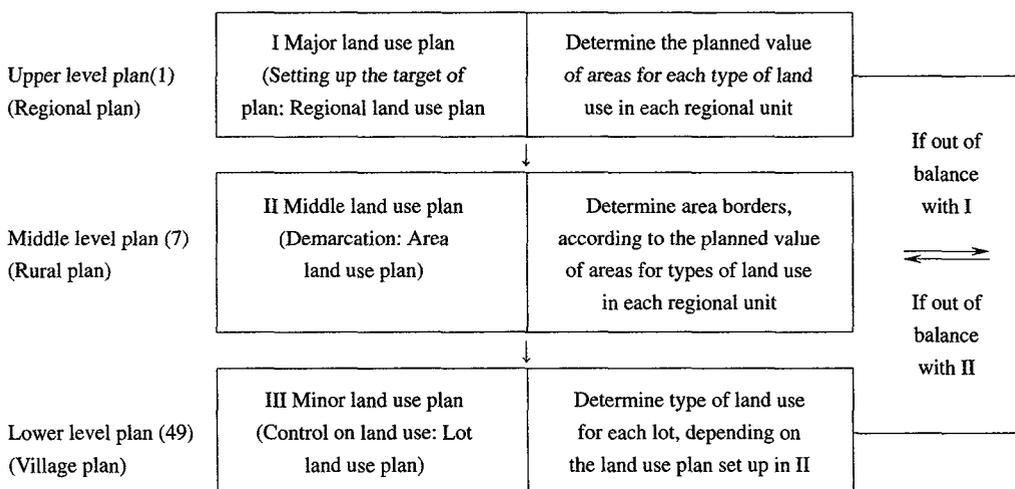
minor land use and establish a system controlling land use based thereupon. The “district plan” scheme cited in the City Planning Law has been produced only after setting the German B-Plan as the prototype. Further consolidation of this scheme is expected in the future. “District planning of settlement” and “planning for village agriculture promotion area,” cited in the Settlement Area Improvement Law, are compatible with this minor land use plan.

Farmland consolidation plans implemented in municipal areas are characterized as land consolidation plans for middle land use or (more often) for minor land use. Hence, proper establishment of land use plans in the farmland consolidation projects is the most effective way of forming the order of land use as well as making an actual contribution to the improvement of agriculture promotion plans, including agricultural area use plans.

(5) Systems of land use planning

Systems of land use planning are constructed by linking the three classes of land use plans as shown in Fig. 4. That is, areas for each kind of middle land use should be determined for each regional unit in the major land use plans and, according to this, borders of areas for each kind of middle land use should be defined in the middle land use plans. Subsequently, lot borders should be determined in the minor land use plans by adjusting the borders for middle land use, set up in the way described above, with private ownership and user rights of land, in order to make land use plans able to contribute to the legal control of land use.

However, recognition of this system as a top-down system, in which an upper plan dominates lower



(): Approximate number of land use plans counted according to the Christaller model

Fig. 4. System of Land Use Plans

plans, is not right. There will be at least 49 (in practice, on the order of 50 to 70) minor land use plans for one major land use plan if the Christaller model is followed. Hence, it will be administratively impossible for all villages to make their minor land use plans at once, determine middle land use plans, and fix the major land use plan, although this may to some extent depend on planning technique and capability for village plans. If three plans are made annually, it will take about 20 years to make nearly 60 village plans, during which time socioeconomic conditions would surely change.

Hence, the author proposes the following method: First, prepare the major land use plan to show a loose policy for the order of land use in the region. Second, prepare middle land use plans along the lines of the policy set up above as the reference for setting area borders, to assure the order of land use in the entire region. Next, make minor land use plans in the village level one by one. During these processes, adjust relations between plans of the three classes occasionally so as to maintain balance. Thus, the order of land use is formed as shown in Fig. 4.

In this way, the major land use plans correspond to the regional plans, and the middle and minor land use plans correspond to the rural plans.

5.2.2 Contents of Land Use Plan

The contents of the three classes of land use plan have been roughly described in 4.2.1. To explain specifically, land use plans should be prepared focusing on the two points listed below:

- ① to determine borders between kinds of land use
- ② to determine amount of demand for each kind of land use

Hence, it is essential to determine types of land use in such a ways as to include and articulate concepts for classification of kinds of land use. Table 3 summarizes kinds of land use in the major, middle, and minor land use plans.

Each land use plan includes kinds of land use in four categories: kind of land use relating to agricultural activities; kind of land use relating to living and business activities (buildings); kind of land use relating to forestry and recreation activities (green space); and kind of land use relating to public service such as traffic and water utilization. To consolidate the contents of entire systems of land use plans, it is important to pay attention to these four categories in each land use plan, and link the common in each category from the major (the macroscopic) to the minor (the microscopic) and vice versa.

5.2.3 Relation between Regional Planning and Land Use Planning

Land use plans are divided into the three hierarchical classes described earlier for technical reasons. Hence, it is important to determine how the land use plans of these three classes should be articulated systematically in order to establish the order of land use through land use plans. Much of the confusion

Table 3. Land Use Kinds for Each Class of Land Use

| Classes of Land Use Plan | Major Land Use Plan | | Middle Land Use Plan | | Minor Land Use Plan | |
|--|---|---------------------------------------|--|---|---------------------|--------------------------------------|
| | Land Unit Name | Plan Name | Land Unit Name | Plan Name | Land Unit Name | Plan Name |
| Activities Relating to Land Use | Region | ○○○ Region Plan | Area | ○○○ Area Use Plan | Lot | ○○○ Land Plan |
| Activities Relating to Agriculture | Agricultural region | Agricultural region plan | Agricultural area | Agricultural area use plan | Farmland | Farmland plan |
| Activities Relating to Living and Business (Buildings) | Urban region | Urban region plan | Settlement area | Settlement area use plan | Residential land | Residential land plan or (Site plan) |
| Activities Relating to Forestry and Recreation (Green space) | Green region | Green region plan | Green area (or Forestry and Recreation area) | Green area use plan | Green land | Green land plan |
| Activities Relating to Public service Such as Traffics and Water Utilization | Disaster prevention region, Protection region, etc. | Disaster prevention region plan, etc. | Traffic area and Water utilization area(river) | Traffic area use plan and Water area use plan | Road and Water way | Road plan and Water way plan |

surrounding the order of land use, both in Japan and in many countries around the world, comes from deficiencies in the technologies and systems of land use plans. For example, no scheme of land use that draws a whole municipal area in a unified way is provided in Japan, and, consequently, the legal land use plan is a combination of urban plan and agriculture promotion plan. District planning schemes (1977) for city planning and legal land use planning schemes (Settlement Area Improvement Law, 1987), which take rural villages as the object, have just begun to work. No broad municipal sphere land use plan scheme is provided. Green space land use plan schemes are also defective.

To make those land use plans effective, they must be defined in the context of systems of regional planning. For this task, it is important to know what recognition is given to the system of land use planning considering the technical viewpoint inherent in the special nature of Japan's system of regional

planning. This problem turns itself back to the subject of how to introduce the linkage of major, middle, and minor land use plans into the regional planning system of “county sphere plan / municipality plan / old municipality plan / agricultural village plan” in order to achieve the final purpose – legal land use planning at the level of the minor land use plan.

Under the old system, a group of about 10 old municipalities formed a county sphere, which was independent from other regions as a regional unit, and each old municipality was formed of about 10 villages; if all Japanese municipalities were organized on this scale, conditions would be ideal for forming a system in which the “county sphere land use plan = major land use plan”, “municipal land use plan = middle land use plan”, and “village land use plan = minor land use plan.”

However, today’s Japanese regional system of county spheres is different from that. A municipality may be a town of 1,000 ha or a city of 30,000 ha; some villages may be large and others small. Hence, a municipal land use plan can be other than the middle land use plan, and a village land use plan can be other than the minor land use plan, even if a county sphere land use plan is always the major land use plan. In general cases in practice, a municipal land use plan has to take the form of the combination of a major land use plan and a middle land use plan, and the village land use plan takes the form of a combination of middle and minor land use plans.

Positioning of land use plans in regional planning would generally be as shown in Table 4. The municipal land use plan can take various combinations of classes of land use plans, because the scale of municipalities can vary over a wide range. Hence, each municipality should voluntarily systematize land use plans (referring to Table 4) since it is problematic for the municipality to prepare for land use plans

Table 4. Relations between Regional Planning and Land Use Plans in Each Administrative Division

| Regional Plan | Major Land Use Plan | Middle Land Use Plan | Minor Land Use Plan | Combination of Land Use Plans in each Regional Plan |
|---------------------------------------|---------------------|----------------------|---------------------|---|
| County plan | ○ | | | Major land use plan |
| Municipality plan | ○ | ←→ ○ | | Major land use plan Middle land use plan |
| Old municipality (District)plan | | ○ | ←→ ○ | Middle land use plan Minor land use plan |
| Agricultural Village (Oaza, Town)plan | | ○ | ←→ ○ | Middle land use plan Minor land use plan |

Note) ○: The part relating to the appropriate land use plan

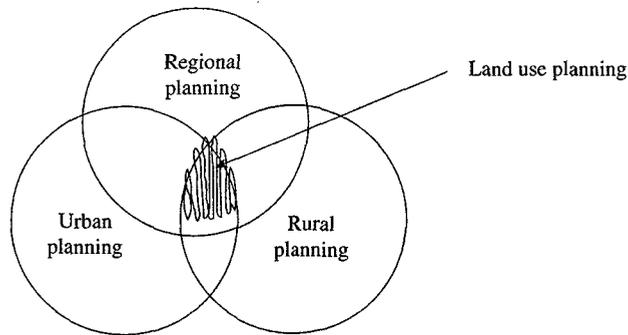


Fig. 5. Regional Planning, Urban Planning Rural Planning and Land Use Planning

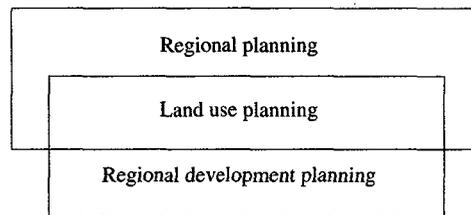


Fig. 6. Regional Planning, Land Use Planning and Regional Development Planning

uniform to all municipalities, based on administrative guidance.

As discussed hitherto, regional planning and land use planning are closely related. Fig. 5 illustrates the relation between regional planning in a narrow sense on one hand and urban and rural planning on the other hand. Land use planning is positioned in the center of those plans and takes the role of adjusting their mutual relations.

The important role of land use planning is to transfer the contents of regional planning to projects; this relation is shown in Fig. 6. Thus, land use planning has the role of adjusting between regional plans and various infrastructure improvement plans; this role for land use planning will be more and more important in the future.

VI. Concluding Remarks

This paper describes the conservation of nature and culture in rural areas considered as a whole. The author first introduces basic principles of regional order, which become the basis of rural conservation.

In the second, the construction of Rural Settlement Spheres as the rural structure for the future is proposed. The construction of RSS is a basis for sustainable development in rural regions. It holds the

key to the conservation of nature and culture in rural regions.

Last, the paper describes land use order as the basis supporting Rural Settlement Spheres. It also discusses the methodological basis of land use planning and the role of planning in conserving nature and culture. The importance of constructing hierarchically rural land use planning is emphasized

Human beings today have to live with the burden of global environmental conservation based on the damage caused by development in the 20th century. Global environmental issues in rural areas include very important matters such as food, desertification, deforestation, and others that affect human existence on the planet. It is a difficult problem to solve these issues. It is, however, necessary to find the solution step by step. Planners should keep in mind that planning is in the forefront of the effort toward a solution.

References

1. T. Nishiguchi, A. Nagasaki, T. Kitamura (ed. 1981): *Land Evaluation: For the Sake of Land Improvement and Land Use Planning*. Agriculture and Forestry Association (in Japanese).
2. Kitamura, T. and S. Kobayashi (1994): *Systems of Land Use Planning for Sustainable Rural Development*, in "Sustainable Land Use Planning" (ed. H. N. van Lier and others). Chapter 25, 317-324. Elsevier.