

## **Who would like to maintain a landscape if it is scarcely economically viable? -The past, present, and future of landscape planning in Japan-**

**Makoto Yokohari and Marco Amati**

Institute of Policy and Planning Sciences, University of Tsukuba

Tsukuba, Ibaraki, 305-8573, JAPAN

myoko@sk.tsukuba.ac.jp

### **1. Order from a distance, chaos when experienced**

Observed from a satellite Japan is a country of green. Despite numbering more than a 120 million people living on a mere 370,000 km<sup>2</sup> of land, 70% of Japan's surface is covered by forest of diverse vegetation with another 15% for agricultural uses. This results in nearly 90% of the land-cover being greenspace. What characterizes the greenspace in Japan is not only its abundance but also its configuration and quality. The terrain consists of more than 60% of erosion-prone and steep mountain ranges of volcanic origin. This, combined with a monsoon climate and a heavy and strong rainfall mean that the forests and agricultural lands are carefully located and kept under intensive maintenance, to secure sustainable forestry and agricultural production.

Such a prudent land use pattern and its careful maintenance have resulted in well-ordered rural landscapes. When observing Japanese these landscapes from an aircraft, one can easily identify a configuration of various land uses, clearly reflecting the natural and social assets of the area. Visitors from abroad may interpret such rural landscapes as a clear expression of the deep appreciation of nature by the local people, and may dream of spending happy holidays in such a beautiful place. For Japanese returning to Japan after spending several years abroad it should feel as though they are finally back home when they see such rural landscapes during the flight's descent toward the airport.

However, when those same people disembark and board surface transportation to head out to their destinations in rural Japan, their impressions of the landscape may dramatically change. Disordered land uses with insufficiently controlled urban developments, scattered billboards along highways and railways, and abandoned forests and farmland patches are representative features of rural Japanese landscapes today. It may not take long for the dream of spending a happy holiday in such a beautiful landscape to be shattered by such a chaotic reality.

### **2. Plans and regulative measures to control disordered landscapes**

Chaotic landscapes and their main cause, disordered land use, have been one of the most frequently and substantially tackled problems in Japan planning. Successive implementation of modern urban planning concepts, which originated in Europe and North America. i.e. green belts and zoning plans, have attempted to control the disordered growth of cities (Yokohari, *et.al.* 2000). Good examples of such an attempt are the plans to implement a greenbelt along Tokyo's administrative boundary. The first such plan was officially announced in 1939 as part of the comprehensive parks and open space plan of the Greater Tokyo Region. Succeeding this plan two plans, one during the Second World War (1943) and the other after the war (1948), were announced. However, as present Tokyo clearly demonstrates, these plans were poorly implemented,

with only a number of parks in the suburbs of Tokyo to be found as a result.

Another western measure frequently applied to Japanese cities is that of zoning. The zoning system was first introduced by the City Planning and Zoning Act in 1968. Traditional European cities, where urban areas are sharply separated from surrounding rural areas by a clear boundary line, were the target image of the act. Two types of areas were promoted in the planning district: urbanization-promotion areas and urbanization-control areas. Urbanization-promotion areas consist of zones that include existing urban areas, and areas that should be urbanized within approximately ten years' time. Urbanization-control areas include rural areas and aim to exclude urban development, except public facilities such as hospitals and schools. However, even after more than 30 years since the act's passing, a mixed landscape of small agricultural lands surrounded by micro-housing developments can easily be found in the suburbs of major Japanese cities.

The latest regulative measure on the control of landscapes, is the Landscape Act which is planned to become enacted in 2004. This is the first act in Japan which clearly targets the conservation of scenic value of a landscape by preserving landscape elements that represent the scenic quality of the area. In urban areas, targets of the act are mainly man-made structures such as historic buildings, monuments, and open gardens, while in rural areas historic and cultural land use patterns including terraced rice paddies and traditional rural settlements are intended to be preserved to maintain the scenic quality of the area. Programs that give financial incentives, such as a tax reduction to the owners of properties with scenic value, are the proposed measures for achieving this conservation.

### **3. Restoring economic viability of landscape elements with scenic and ecological values**

No matter how much financial incentive is given to owners of a scenic property, a big question remains however. Who wishes to keep and/or maintain a property if it scarcely has any economic viability? This question can be illustrated by looking at the example of *satoyama* woodland and the semi-natural landscapes that remain mixed with, and close to Japanese urban areas. *Satoyama* woodland consists of coppiced woods, which have been intensively maintained for harvesting litters, firewood and charcoal (Yokohari, 2002). Because of its welcoming appearance, it is now regarded as an indispensable semi-natural landscape that should be conserved.

*Satoyama* woodland is valued not only because of its appearance but also because of its ecological role. A number of plant and animal species, which characterized *satoyama* woodland and were abundant all over Japan, including *Erythronium japonicum*, are now threatened by extinction. In the report "New National Biodiversity Strategy of Japan" the Ministry of Environment identifies *satoyama* woodland as an indispensable ecological heritage that should be carefully conserved to maintain Japan's biodiversity (The Ministry of Environment, 2002).

Although these aspects of the value of *satoyama* woodland are well-known, because of the widespread use of fossil fuels and chemical fertilizers after World War II, *satoyama* woodland significantly lost its economic viability and its maintenance was abandoned over the course of several decades. Today, a deteriorated landscape with illegally dumped garbage and overgrown weeds is the most commonly observed scene of *satoyama* woodland. *Satoyama* woodlands are in many cases just left there without receiving sufficient maintenance, and/or regarded merely as idle land for future development. Programs to give financial incentives to the owners of *satoyama* woodland are in most cases far too weak to restore its economic viability.

#### 4. EXPO2005 project: Application of modern technology for the restoration of economic and social viability of *satoyama* woodlands

Applying modern economic values to *satoyama* woodlands should therefore be the key issue for the sustainable maintenance of this landscape in the future. The conceptual plan proposed for the conservation of *satoyama* woodlands on the EXPO2005 site, includes a number of trials to restore the landscape's economic viability (Yokohari, et.al, 2001). The *Satoyama* woodlands on the proposed site were created by intensive and constant human disturbance including the periodic clear cutting of woods. A nutrient-poor soil resulted from this use and created marshy meadows among the woods, which provide an ideal habitat for endemic and endangered species such as *Magnolia stellata*. If the landscapes were to be abandoned for several further decades, the soil would become gradually more fertile and the existing plant species would be replaced by species that are adapted to this new habitat. To sustain such intensive human intervention the plan included the use of a new technology known as the steam explosion, which utilizes woods harvested from *satoyama* woodlands. This currently experimental technology, decomposes wood into tissues, and then molds them again into particleboard using a process that carefully controls pressure and temperature. The technology is expected to restore the economic value of thin and bent woods provided by *satoyama* woodland. This wood cannot be used at the moment as it is not suitable for lumber.

For the ecological restoration of deteriorated *satoyama* woodlands, a number of local municipalities as well as NPO groups in Japan currently maintain *satoyama* woodland for the sake of preservation or conservation of their scenic value and ecosystems. However, no matter how active these groups are, it is obvious that only a limited number of *satoyama* woodlands may be maintained by such voluntary activity. *Satoyama* landscapes should be a sanctuary not only for scientists, naturalists and/or bird watchers, but should also be a place where ordinary citizens can appreciate and enjoy them. To meet such a requirement the planning team proposed a network of horizontal corridors. This is a network of pedestrian trails without vertical fluctuation that invite people into the *satoyama* woodlands. Corridors are mostly located on the ground by following contours, while some parts are elevated, trenched, tunneled, and bridged so that visitors can enjoy the view of the wooded hills from various perspectives. Corridors that continue horizontally may also ensure easy and comfortable access for physically disabled and elderly visitors.

#### References cited

1. The Ministry of Environment, 2002, Development of the National Biodiversity Strategy of Japan, <http://www.biodic.go.jp/cbd/outline/rev-unedited.pdf>
2. Yokohari, M, K.Takeuchi, T.Watanabe, and S.Yokota, 2000, Beyond greenbelts and zoning: A new planning concept for the environment of Asian mega-cities, *Landscape and Urban Planning*, 47, 159-171
3. Yokohari, M., H. Kurita and M. Amati, 2001, Conservation of *satoyama* landscapes for the restoration of ecological integrity of urban areas in Japan, *Journal of the Korean Institute of Landscape Architecture*, Int'l. edt, 1, 43-52
4. Yokohari, M, 2002, Mechanism of *Satoyama* Landscape Transformation. *Satoyama -The traditional rural landscape of Japan* (Takeuchi,K, I.Washitani, A.Tsunekawa, R.D.Brown, M.Yokohari ), 2002.10, Springer , Tokyo, 229pp.