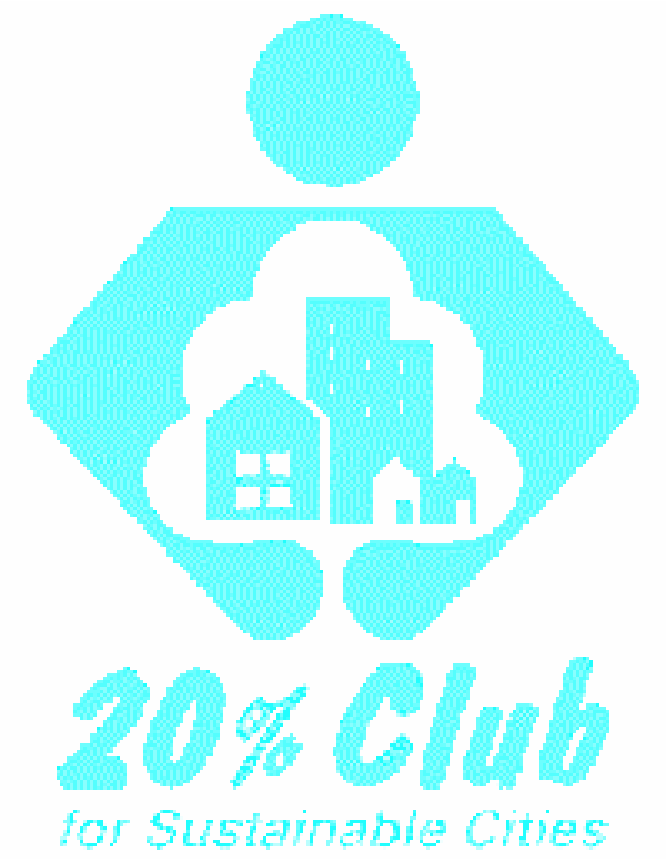
FY 2001

20% Club for Sustainable Cities

—Case Studies from the Workshop for Sustainable East Asia



Looking for Sustainability in Cities

持続可能な都市のための 20%クラブ　先進事例集
～「都市の持続可能性を考える日中韓ワークショップ」より

Preface

A majority of the global environmental problems today originated from local economy and lifestyle issues; therefore, initiatives by the local communities to solve these problems are becoming increasingly important. For this reason, the roles and the responsibilities of local governments, the direct administrators of these local communities, are significant. Participation by the citizens and by NPOs/NGOs is also indispensable for building a sustainable society.

In November 2001, the 20% Club for Sustainable Cities held a workshop entitled 'Sustainable Asia through Environmental Communication'. With a focus on environmental communication and sustainability in the Asian region, we discussed the exchange and sharing of information concerning local governments' activities especially in China, Japan and Korea. International environmental cooperation on a local basis in Asia was also discussed.

At the presentations of case studies, much attention was given to a rainwater harvest project in the rural area of Gansu province, China. Prof. Zhu, formerly of Gansu Research Institute for Water Conservancy, reported that more than 2 million water-tanks were installed between 1996 and 2000; they provided water for 1.97 million people and irrigated more than 2,000km^2 of agricultural land. Although the method for catching rainwater was quite simple, involving the use of plastic sheets, the yield increased as much as by 40%. In the struggle to use the wisdom and the energy of the semi-arid mountain areas to achieve sustainable agriculture, this is an important step forward. At the same time, one of the national policies of Chinese government, 'transforming farms into forests' has been implemented in the area. This is a program for restoring unproductive farms back into the forestland. The Gansu example let us catch a glimpse of the dedication and determination with which sustainable community building is being implemented.

We also had a report about two projects conducted in Yangpyung County, Kyonggi Province, Korea: 'Love for Pure Water' and 'Environment-Friendly Agriculture'. Both of them have been promoted vigorously and effectively with the cooperation of administrators, local residents and NGOs. Yangpyung County has a lake which serves a reservoir for 22 million people. Its water quality is maintained at a high level, thanks to careful measures taken by the resident participation. As Environment-Friendly Agriculture (organic agriculture) is promoted, the use of agricultural chemicals has been reduced by half since 1997, and now fireflies and locusts have returned. The County emphasizes the partnership with NGOs/NPOs. This is a good example of a success story in building a sustainable community.

The Workshop served as a vehicle to promote communication and information exchange/sharing between local governments and NGOs/NPOs, the main stakeholders in building sustainable societies. It also revealed some possibilities for future partnership and mutual support between the three countries.

March, 2002
20% Club for Sustainable Cities

Contents

A Workshop for Sustainable East Asia Through Environmental Communication

1. Outline

◆**Date** : November 27(Tue.)- 28(Wed.), 2001
◆**Location** : Kanagawa Museum of Modern Literature, Medium-size conference room
◆**Organized by**: 20% Club for Sustainable Cities
◆**Supported by**: Kanagawa prefecture, Ministry of the Environment of Japan
◆**Language service**: Japanese, English

◆ **Program**

November 27th

Opening & Welcome Remarks **9:45 - 9:55**
Coordinator:Prof.Katsutaka Shiraishi/Dept. of Political Science, Ryukoku University

Keynote Speech **9:55 - 10:45**
Environmental Cooperation in North East Asia for Building Sustainable Cities
Prof. Il Chyung Kwak/Dept. of Regional Development Studies, Kyung-Won University, Korea

<Session1>Environmental Communications: Key for Sustainability 10:45 - 12:50

Case Study Presentations **10:45 - 11:55**

① *Mr. Tsuyoshi Tazaki, Dept. of General Affairs, Public Relations, Kuriyama Town, Hokkaido*
② *Mr. Ikuo Sugimoto, Chief Coordinator, Citizens Environmental Foundation, Kyoto City*
③ *Ms. Lee Ki Myung, Executive Director, Korea Sustainable Development Network, Korea*

Break **11:55 - 12:05**
Discussions / Summarization **12:05 - 12:50**
Lunch Break **12:50 - 14:30**

<Session2>Sustainable Cities through Watercycle and Rainwater Use 14:30 - 17:30

Speech **14:30 - 15:20**
Mr. Makoto Murase, Dept. of Environment Protection, Sumida Ward, Tokyo/ Secretary General of Japan・People for Promoting Rainwater Utilization

Case Study Presentations **15:20-16:30**

① *Mr. Hidetoshi Hibino, Vice Director, Dept. of Environment and Citizens, Environment and Water resources Planning section, Minami-Ashigara City, Kanagawa*
② *Mr. Tetsuro Yoshimoto, Director, Dept. of Agriculture, Forestry and Fishery, Minamata City, Kumamoto/Secretary General, Association of Local Studies*
③ *Prof. Zhu Qiang, Vice President of International Rainwater Catchment System Association/Former Professor, Gansu Research Institute for Water Conservancy, China*

Break **16:30 - 16:45**

Discussions / Summarization **16:45 - 17:30**

Reception *at Restaurant Planet (Star Hotel Yokohama)* **18:15 - 20:00**

November 28th

<Session3>China-Korea-Japan Trilateral Cooperation for Sustainable Asia 9:40 - 12:30

Speech **9:40 - 10:30**

Dr. Fu Xiaofeng, Project Officer, Local Agenda 21 Division, the Administrative Center for China's Agenda 21, China

Case Study Presentations **10:30 - 11:20**

① *Mr. Min Byung Chae, County Executive, Yangpyung County, Kyonggi Province, Korea*
② *Mr. Yoshihiro Miyazaki, Representative, Greenery Support Group, Tanushimaru Town, Fukuoka*

Break **11:20 - 11:30**
Discussions **11:30 - 12:00**
Conclusions **12:00 - 12:30**

2. Workshop

Embracing Ecological Mechanism: Towards the Creation of a Socio-Economic System

Prof. Katsutaka Shiraishi
Department of Political Science, Ryukoku University

Towards a Socio-Economic System that Embraces an Ecological Mechanism

How are we going to stop global warming and to realize a sustainable society? Or in other words, how are we going to create a socio-economic system that embraces an ecological mechanism? To answer these questions, a feasible scenario with a scientific basis is needed. This in turn, raises a further question that needs an answer: if this scenario is adopted as a policy, how can the necessary range of participants be brought together in partnership to make the scenario into reality.

Many argue that a sustainable society requires a paradigm shift, that is, a fundamental shift of socio-economic structures including structures of thought. Naturally any alternative scenario that involves a paradigm shift should be able to explain how to establish the social and political conditions to make this shift happen. Finding such an explanation is indeed the biggest challenge to overcome.

How can social and political conditions be coordinated in order to create a socio-economic system that embraces an ecological mechanism? Furthermore, how can industries and lifestyle be restructured while the potentially harmful consequences of this are minimized?

In other words, an alternative ecological scenario requires the transformation of industrial structures and lifestyle, and this transformation cannot be realized unless certain social and political conditions are set. The following two points must be taken into consideration.

First, a social and political situation where economic growth and consumption demand are restricted to a certain level is necessary to minimize the negative impact on the global and local environment. Secondly, a participatory strategy, involving all elements of society (individuals, families, companies, NPO/NGOs, local governments, national government) is required to plan and implement each step towards realization of a sustainable society.

Thus, a strategy seeking for sustainability should include social and economic as well as environmental aspects. Moreover, the indispensability of a policy approach aimed to promote participatory initiatives through the policy process should be recognized.

“Green Audit” in Lancashire (UK)

EU countries have widely accepted the idea which was born at the time of the Rio Summit: a sustainable local society depends on three factors; environment, community (society), and economy. Among the advanced local governments, arguments on environmental policies have undergone a dramatic change. There has been, in a word, a

shift from environmental targets to comprehensive targets.

Lancashire is regarded as an advanced environmental municipality in UK. It is famous for the “Green Audit” which was announced as early as 1991 – a year before the Rio Summit – with the promotion coordinator, Lancashire Environmental Forum, and also for ‘Lancashire Environmental Action Plan, LEAP’ established in 1993 on the basis of the “Green Audit”. The topics which the “Green Audit” includes ‘local structures’, ‘atmosphere’, ‘waste’, ‘noise’, ‘energy’, ‘land use and agriculture’, ‘wild fauna and flora’, ‘landscape and townscape’ ‘open space’ and ‘transportation’.

Comparing these 11 topics with the 11 themes from the 1997 “Green Audit 2”, the development of activities in Lancashire can be seen clearly. “Green Audit 2” identifies the targets for sustainable development, and measures each achievement by a concrete index: ‘promotion of effective resource use and waste reduction’, ‘reduction in pollution level’, ‘expansion of diversity in the natural environment’, ‘realization of basic needs of the people at the local level’, ‘employment increase under economic diversification’, ‘increase in health and welfare’, ‘combining environmental protection with access to goods and services, people, and facilities’, ‘reduction in crime and oppression’, ‘greater access to education, training and information’, ‘increase in opportunities for involvement in the decision making process’ and ‘promoting respect for neighbors and community’. The main feature is shown in the idea that sustainable development cannot be made a reality unless the social and economic fields, as well as environmental field, have sustainability.

According to a Lancashire local government official, “the change brought by the “Green Audit” project became apparent when people from diverse background came to the partnership table, and when a range of local community problems began being perceived from the point of sustainability“. The point of view has thus shifted from the environment to one of a “total quality” community.

Key to Groundwork Development (UK)

Given that the three aspects of environment, society and economy are connected, which factor is the most important in seeking for sustainable development? From my own experience of case studies, social aspects, especially the local community development seems to have the most significant meaning.

Groundwork is one of the Non-Profit Organizations (NPO) in UK. It was founded (under the auspice of the national government) mainly to improve the environment of degraded and abandoned land. It has more than 40 branches all over UK (except for Scotland), mostly in urban areas.

In my view, Groundwork has made progress because of two reasons. One is the involvement of local communities, and the other is the political empowerment of local residents through participation. While people got close to each other, they identified problems and tried to solve them. Increasing the energy of people and local communities is the secret key for changing a local society.

In the UK, during the Thatcher administration, many coal mines were closed, and the former mining towns suffered from hard conditions economically and environmentally. A project to make green parks out of abandoned coal-slag heaps, where soil acidity prevents

trees and grass from growing, has been implemented since the early stage of Groundwork activities as part of the 'From Wasteland to Green Land' Project.

A community green park called Bold Moss Common in St. Helens has now been open for nearly 20 years. I have been there three times. Each time I visited, it was different. Each time layout was different from my previous visit, and there was a time when I saw a new stone-built small theater. Obviously the park has been well maintained and developed. Its continuous changes show that the relationship between the community and the park is an on-going one.

The main feature of this program is the role of community involvement in its development. Soil improvement, water quality improvement, planting, design and installation of objects like monuments, etc. have increasingly been implemented through the community's participation. Participants include former mine workers who are currently unemployed, and 'delinquent' youths who could not get proper jobs. Participants regained their self-confidence through newly-established relationship with community. 'It's fun to work with other people', or 'We can make some contribution to the community,' they said. Some could leave their troubled past behind because of the high reputation they earned. This example shows that the process itself is as important as the result, its conversion of a deserted land to a green park.

An Image of Sustainable Society

It is a policy with an impact strong enough to empower people and to increase social energy that is vital for sustainable society. The importance of this does not necessarily lie only in encouraging people to participate for themselves in environmental issues.

The economic mechanism behind the 20th century economy of 'mass extraction, mass production, mass consumption, mass waste' was supported by individual values of 'high consumption = affluent life = happiness'. A value shift in the meaning of a 'rich life', that is, 'changing from a lifestyle of over-consumption to one of simplicity, balance and environment-friendliness', lead to conversion in existing policy, which has accepted conventional industry unconditionally as the driving force for local economic development. A change in consumers' needs, which is already underway, is causing changes to the quality of products and to the production/disposal processes. This change is promoting the role of the environment as a certain kind of rule governing the global market economy that often has tendency to go too far.

Such a change in values, however, cannot change the present socio-economic system single-handedly. The reason is that under the present market economy, demand control will lead towards unnecessary overall reduction in production. (This is why growth stimulating measures are taken all the time.) Production reduction in turn leads to a reduction in salaries and revenues. If the only supply route for goods and services is through market transaction or the government, reduced production immediately creates difficulties for individuals and social stagnation. Are there any ways to mitigate this?

Examples that I have seen in UK and US show that some local communities in economic difficulties have succeeded in staying positive and energetic, and maintaining safety, but others have failed to do so under the same conditions. The difference was whether or not the community was a healthy one where community-based NGOs were fully operative.

Here we can look for a clue to how controlled economic growth might not trigger social stagnation.

A sustainable society would be a place where there are many channels into which people's energy can be guided through the energy directly present in society. It should be a society with multiple providers of goods, services and employment, which are not restricted to government and companies. Therefore it must be a society where the power of people and of society cannot be governed only by economic growth and the administration.

Change of Local Revitalization Strategies towards Environment-Concerned Endogenous Development

A model for typical ideology for conventional local development strategies would be as follows. When a growth-incentive economy is established in the area, it forms a 'growth pole', in which a 'repercussion effect' enhances local economic standards and living standards generally. This model is a growth model relying on a growth-incentive industry, that is the impact of large capital. In many ways, this becomes an 'exogenous development', which is a type of development based on companies and development projects drawn from outside in order to develop a local economy.

The limit and problems of exogenous development has been pointed out from various perspectives. The alternative is called 'endogenous development'. This is to seek for a driving force needed to revitalize the local community in local residents' endogenous power for reform, if the resources required are not readily available from government and outside capital.

In late 1980s when the world was suffering from economic recession, it was Silicon Valley in the US and central Italian cities called "the 3rd Italy" such as Bologna and Prato that got attention from the researchers as models for industrial revitalization. Silicon Valley is the focal point of the world most advanced high-tech industry, while "the 3rd Italy" is a focal point of traditional 'low-tech' industry. At first glance, the differences look more conspicuous between these two than the similarities. But they have common features, as the researchers discovered, in the networks between companies and the energetic character of the local community.

It has been pointed out that in order to make a local economy flexible enough to adapt itself to long-term changes in the economic environment, enterprises of sufficient diversity to enhance the capacity to adapt to changes should gather in the local community, and that these companies should be both competitors and partners at the same time. The two areas mentioned above had this in common; they both recognized the necessity for partnership between companies, they both found a key to realize such a partnership through the power of local community, and they both promoted a harmonious relationship among companies, researchers, administration, residents while aiming to activate the community.

During economic crisis between late 1980s and early 1990s, Silicon Valley suffered from a continuous drain of a large part of this important human resource for its business. It was analyzed that talented people had never been attracted by the town because it could not offer them a good environment for living and bringing up children, and that they

simply moved to a better natural environment and living conditions in places such as Seattle where the head offices of the Microsoft and the Boeing are based.

In 1993, in order to get out of this crisis, 'Joint Venture Silicon Valley Network' was founded with the cooperation of industry, administration and academics. Its aim was to solve problems about social welfare, education, environment, etc., as well as supporting business activities and to their adaptation to the advanced world of information technology. This organization expressed its mission as the creation of 'total quality' community. The efforts made here were highly praised as a great contribution to the renewed progress of Silicon Valley.

It is getting clear that not only for the high-tech industry, but in general, the 'quality of life', or 'character of the community' should be attractive to attract people, goods and money while competition between local communities on the global scale intensifies. This means that industrial infrastructure in the narrow sense will not do. Thus, discussion on community activation is beginning to take place from the perspective of economic competition also. The necessity of comprehensive efforts for local development is recognized, and there include (apart from the economy) housing, culture, sports, social welfare, education, amenities, natural environment, safety, and community revitalization. This is indeed the basis for a 'total quality' community. Now preparations are underway to develop conditions in which local activation strategies can be transformed into environment-concerned endogenous developments.

Steps towards a Sustainable Local Community

Here I suggest that a variety of participating bodies can be put together under the target of community activation when the keyword, sustainability, is applied at the local policy level. The reason for this is that policies at the local level, like community revitalization and the increase in social energy based on people's involvement and their self-governance, can prepare the fundamental conditions necessary for realizing sustainability.

This is not, however, simply what the policy process is and how it should be. Concrete policy targets, and a focal point for policies where the various participating bodies can concentrate their energy, are needed. Where can this point be found? This is where the word, 'environment' should appear. When environmental issues are tackled in the local community in a form of empowering social energy, the approach called 'Local Agenda 21' fits into the structure for the first time, and individual concrete activities for the environment begin to have relevance to the whole process as well.

My duty as a discussion coordinator, needless to say, is to facilitate deeper understanding of the lectures and presentations, but also to try to make connections between the idea of sustainable community and a variety of elements so that we can imagine such a community in our minds. This is too big a job for me alone. Therefore I will ask for your support.

Keynote Speech

Environmental Cooperation in North East Asia for Building Sustainable Cities

Prof. Il Chyung Kwak
Department of Regional Studies, Kyung-Won University, Korea

To understand the prospective world order of the 21st century, we should look to the several current trends. The best-starting points are the transnational economy and the transnational ecology (P. Drucker, 1989).

Globalization has already been seen in all the areas throughout the world, and the economic and environmental fields have shown this trend most clearly. Jeremy Rifkin foresaw that geopolitical ideology of the 20th century where significant parts of the global environment were degraded and a number of people forced to live under terror of military retaliation, would come to an end, and that a political order founded on a ecological right to life would replace it as a main theme of the world history. (Rifkin, 1996) This era of ecological right to life will be the most solid foundation for the 21st century human civilization, and will produce a new political and economical structure suitable to our new ecological understanding for the living organism, the Earth.

Geographically, the parts of North-East Asia are closely connected to each other. According to the results of a survey conducted by Argon Institute, USA on the impact of acid rain in Korea, China and Japan, 13% of the acid rain in the Seoul metropolitan area comes from China, while 29% of the substances producing acid rain in Kyushu comes from Korea, and 32% from China. Pollution of the Yellow Sea has become increasingly serious, while the river waters flowing into the Yellow Sea from China and Korea carry vast amounts of contaminated substances. Heavy marine traffic and fishing activities have also caused significant oil pollution. In the past, illegal dumping of nuclear waste by the former Soviet Union polluted the Japan Sea.

As these examples show, North-East Asia is a single environmental community where environmental pollution in one country has a direct impact on its neighbors. Thus an existing environmental problem can develop into an international conflict, and there is a possibility that a large number of “environmental refugees” who have lost their livelihood because of environmental destruction in their own country might push their way into neighboring countries. Environmental cooperation among the countries in North-East Asia is vital to prevent environmental conflicts and refugees.

Currently North-East Asia is a focus of attention as a new economic community for the next generation. China with its large population, Japan with its capital and technology, and Korea with its restructured economy are expected to negotiate and coordinate interests to form a single economic bloc. But only an economic community suitable to the era of an ecological right to life has the capacity to build a true partnership in this region.

While the need for environmental cooperation in North-East Asia is increasing, in recent years, various forms of cooperative institutions have come into operation. However, although the quantity of environmental cooperation in the region has made progress in a

short time, the quality of this leaves many problems to be solved, and sometimes these problems look overwhelming: ① the activities are rather sporadic under the less systemized framework, ②the interests of countries concerned often clash, ③practical problems such as establishment of institutions and fund rising remain unsolved.

One of the reasons is that the cooperation does not involve projects which appeal directly to the people of North-East Asia, but is merely an abstract diplomatic effort presented in idealistic and ethical terms. In such a situation, actual cooperation in North-East Asia towards building sustainable cities has a significant meaning. Environmental cooperation in the region should ①be based on local elements, ②be practical and feasible, ③have the capacity to exchange meaningful information. Local initiatives for environmental protection such as Local Agenda 21 (LA21) will be important strategies for practical environmental partnership.

The process of LA21 generally starts with identifying local environmental problems; after establishing as priorities those targets suitable to the overall local interests, comprehensive and long-term solutions are then prepared and implemented.

The primary characteristic of the LA21 program is that it takes a comprehensive approach towards environmental issues. The recent environmental problems are not simple pollution problems, but have complicated causes closely connected with socio-economic conditions. Thus individual local environmental problems involve not only other environmental issues, or problems of resource use, development method, economic and living standards, social equity, etc., but also problems of local history and culture. To solve even one problem, it is necessary to consider all the other possible connections and to take a comprehensive approach.

The second characteristic is that the focus on local activities enables LA21 to recognize the changed relationship between ecosystem and human beings. Human beings that are regarded as one of the major elements which have an impact on the ecosystem: in order to avoid negative consequences and to bring benefits to the whole eco-system, all the elements including human beings, therefore need to remain productive and healthy. The social and economic needs of other members of the eco-system should be respected as much as human beings', and identified as keys to solve environmental problems for sustainable future.

The third characteristic of LA21 is to encourage the creation of a horizontal structure to enable all the stakeholders to participate to tackle environmental problems. As mentioned earlier, because LA21 takes a comprehensive approach, it needs a variety of information and research findings. The expertise to support this need to be brought from a wide range of fields such as natural science, economics, anthropology, history, political science, etc., to establish a solid foundation for multidisciplinary research.

The participation of a variety of organizations that represent various local interests is also necessary. Diversity among the individuals and groups who comprise the steering organizations allows taking thoughtful approaches at multilevel. It means that expertise is available from all angles in order to facilitate the identification of solutions when the environmental problems are complicated by local factors. Moreover, during the process when stakeholders are working together, various alternatives can be reviewed from different angles in the early stage, and 'trial and error' will be reduced to a minimum.

Session 1

—Environment & Human-Friendly—

"Kurin", Kuriyama Eco-Money

Tsuyoshi Tazaki
Department of General Affairs, Public Relations, Kuriyama Town

1) Purpose of Introducing Eco-Money (Jun.1999～)

For Creating a Multi-Supportive Local Community

◆ To realize a 'Town that can be called a Home' built on the foundation of self-support, mutual support, cooperative support and public support, where safe living is secured.

◆ To revitalize fading local community spirit, and to make the community active by initiatives from individual participants.

2) What is Eco-Money?

The word is a combination of "Economy, Ecology, and Community". 'Eco-Money' is issued by the local residents, and given a name suitable to the community.

"*Kurin*", the local currency for Kuriyama Town, comes from *Kuri*yama and clea*n*.

3) Tools for Circulating Eco-Money (for 2nd Test, Sep.-Nov.2000)

■ "Menu"

The Menu lists items under GIVE (what participants can do) and TAKE (what they would want).

Numbers of items registered GIVE= 386 TAKE= 378
Total numbers of people registered GIVE=5,507 TAKE=3,205

■ The three types "Kurin"

1,000 Kurin (=1hr-work), 500 Kurin (=30min-work),100 Kurin (=Gratuity)

■ "Exchange Record Book"

This recorded the usage of Kurin during the test period, and was used to evaluate circulation afterwards.

※ The 'Menu' was distributed to the participants. They picked up a service they would like to take, ordered and paid by Kurin. This produced a chain of good will among people, leading to an active and energetic community.

4) Summary of the 2nd Test Circulation

■Members of the Research Group・・64 ■General participants・・553
■Circulation Testing period ・・Sep. 1 - Nov. 30, 2000
■Number of items in Menu ・・・47,575
■Events ・・・Eco-Money Festival, Forest-Making & Nature Watch
・・・Eco-Money Flea Market, Kids Eco-Money Adventure

5) Theme for the ‘2nd Circulation Test’

■ Using Kurin for Environmental Activities
1) Waste reduction and awareness promotion (Eco-Point System)
2) Groundwork projects

■ Using Kurin for Social Work
1) For recipients of nursing services
2) For married/single elderly residents

■ Using Kurin for Children (education)
1) Bringing up children within community
2) Promoting awareness of the importance of mutual support

■Using Kurin for local activities

■Model town community was made to promote the exchange of services (New initiative with local coordinators)

Brief Analysis of the 2nd Circulation Test

Exchange Record Books returned …74.6% <Eco-Points>
Users ……76% Users ……168 people (41%)
Total usage ……401 Total points ……2,463 points
Frequency of use per person ……1.4 Average points used ……15
(2.6 in Minami Nakasato area) Sum of Kurin exchanged …80,000 (180 notes)
Total sum of circulated …515,100Kurin Total sum circulated ……695,100

6) Summary of the 3rd Test Circulation

■Number of participants ・・・500
■Test period ・・・・・ Sep. 29, 2001 - Mar. 31, 2003
■Items in Menu ・・・・ 500
■Cooperating shops for Eco-Points・・ 60

7) Themes for the 3rd Circulation Test

Introduction of Support Systems for Eco-Money

A significant change has been made this time in circulating the Eco-Money. The support systems now introduced will produce many advantages.

①The Menu for ‘GIVE’ had to be made in advance, but now it is maintained by a computer system. Therefore a thick Menu book distributed to the participants is no longer necessary.
②Privacy is protected by a mediator.
③Because the records of requests for and provision of services and also the balance can be kept through the computer system, the Exchange Record Books are not necessary any more. Because of the capacity to monitor individual Kurin holdings, a well-balanced circulation can be maintained.
④Users can join the program any time without limitation of registration closing date.
⑤Additional items in Menu and correction for registered information can be easily made.

Promotion of Cooperation by Shops in Eco-Points

The ‘Eco-Points’ system allows Kurin to be gained through daily shopping. It has been invented in order to take action to reduce environmental impacts (e.g. waste reduction), and to respond to the elderly residents who have less opportunities to offer their services, therefore cannot obtain Kurin easily.
7 supermarkets cooperated last time. This time, a total of 60 shops like supermarkets, convenience-stores and shopping centers will join to expand the availability of Eco-Points.
During the Test, initiatives to reduce the use of plastic bags/wrapping and to create original point-menu for each shop will be also taken.
★No bag/wrapping required for purchased goods - waste reduction
★Purchase of goods with eco-label (only in the shopping center) - recycling promotion

【Use of Eco-Point】
The exchange rate last time was ‘10 points =1000 Kurin’. Transactions were done on the spot. To promote circulation and exchange, now it is set at ‘5 points = 500 Kurin’.
A) When 5 points are accumulated, they are detached from the card and exchanged for 500 Kurin at the shop.

B) Lost Eco-Point Card must be reported to Eco-Money Research Group Secretariat for a new one to be issued.
C) Participating shops have posters of ‘ Eco-Point Shops ’ .

【Creating Forests by Eco-Point Activity】
When participating shops implement reduction of shopping bag use/wrapping and promotion of recycled products, they will donate 2 yen for every point to the secretariat (Eco-Money Research Group) as a ‘ Green Fund ’ . Thus donation will be used for funding environmental activities conducted through Eco-Money.

Environment-Friendly Eco-Bag
Eco-Money Research Group has designed a shopping bag so that participants can bring their-own carrier bag. The bag can be used for other occasions. It is sold at the Secretariat.

Sold by Eco-Money Research Group Secretariat (*Ikiiki Koryu Plaza, 3 chome, Chuo*)
Price: 1,000 yen (available in black, navy and beige)

8) What came out from the Test Circulation

- ‘ Do what I also can ’ rather than ‘ Do what only I can ’ - a system where everyone can participate
- Eco-Money connected individual residents in a chain of ‘ what each can do ’ .
- Each citizen, from children to seniors, plays some roles in the community where they live.
- The discovery of ‘ community resource ’ became a step towards building a unique community - creating a new character and fostering community ’ s pride.
- A variety of motivations emerged for residents to participate in community-building.
- The residents were encouraged to think how they could contribute to the community.
- An independent local community with a principle of self-decision making and self-responsibility.

Session 1

The Implementation Process of Local Agenda 21: the Experience of Miyakono Agenda 21 Forum

Ikuo Sugimoto
Chief Coordinator, Citizens Environmental Foundation
Deputy Secretary, Miyakono Agenda 21 Forum

Issues to Consider during the Implementation Process of Local Agenda 21

1. What an implementation organization does:

- To establish an effective implementation organization, it is necessary to have citizens' participation throughout the process, from the planning stage.
- It needs to be a permanent and flexible organization under a partnership.
- It needs to be open to any willing citizens, organizations and businesses.
- The LA21 and the action plan of each community should be developed through citizens' participation.
- Working groups for each project should be organized to put the agenda into concrete shape. They are to dissolve when their missions are completed.
- Each project should have an implementation schedule and an action plan which includes an agreement on responsibility sharing among the bodies in partnership. The projects should be operated flexibly.
- A strategic approach needs to be taken to problems and priorities.
- For the projects already begun by NGOs or businesses, an implementation organization should mainly focus on support and cooperation. Those should be beneficial to participating NGOs and businesses.
- A full-time staff member should be appointed as a coordinator for implementation organization. A budget should be allocated for personnel.
- Decision-making by the implementation organization should be clear and transparent. A steering committee should be established.
- Progress in implementing the plan should be monitored. It should evaluate the projects, assess the progress, feasibility and timescale of target achievement, and make such information available to the public.
- Cooperation and partnership should be established with other local governments in Japan and also abroad.

2. What a Local Government does:

- Policy makers (mayors of cities and towns, village chiefs) should take their leadership to establish LA21 as the basis of initiatives in each section, and each section should become a part of the driving force for implementation.
- A trans-sectional approach should be taken. A framework that can function beyond the barriers of sections and departments should be created.

- A promotion coordinating institution should be established in the administration. There should be staff training to encourage their active involvement.
- All local government officers should be given educational programs about the necessity and challenges of sustainable development and the importance of partnership.
- Professionalism should be developed through staff training and recruitment. Careful consideration should be given to the conduct of personnel management.
- LA 21 and other programs, policies, measures in all areas should be integrated from the viewpoint of environment(sustainability), and coordinated for practical application. The status and basis of LA 21 in administrative planning therefore need to be properly defined.

Session 1

Green Maeul Movement: for Sustainable Community Building

Lee Ki Myung
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1. Aim of KSDN

The Korean Sustainable Development Network (KSDN) was established in 1993. It was founded as the focal point in Korea for the Sustainable Development Network Program (SDNP), which was founded to implement Agenda 21. The purpose of KSDN is to promote 'environmentally sound and sustainable human development' through sharing information and improving communication capacity.
To achieve this purpose, KSDN has been working on ① the establishment and administration of an information network concerning sustainable development, ② the establishment of an environmental data base and the administration of an information resource center, ③ research into issues of environment and sustainable development, ④ an internet service, ⑤ training for action leaders, ⑥ media development including both printed and electronic publications, and ⑦ international cooperation. Above all, its activities focus on education about the concepts of sustainable development and their adaptation to the real world, and on organized grass-root activities.

2. Activities for Sustainable Community Building

One of the priority issues is sustainable community building. A typical example of this is the 'Green Maeul(eco-village) program'. 'Maeul' is a Korean word meaning a traditional community or village.

(1) Background of Green Maeul Program

Korea, which traditionally is a country of agricultural villages with heavily family-centered society, has experienced the rapid collapse of village communities in the last 30 ~ 40 years through the pressure of forced industrialization and urbanization. 80% of the total population was once farmers, but now this is reduced to less than 10%. Nearly 80% now live in the cities; more than half of the whole population is concentrated around the metropolitan area of Seoul.

Excessive concentration of residents in cities causes the aggravation of environmental problems including destruction of the eco-system, air and water pollution and pollution by waste. This applies not only to Seoul but to other urban areas. It is no exaggeration to say that more than half of the total population relies on water from the River Han which runs through Seoul. Drinking water for 20 million metropolitan residents, including Seoulians, originates from the sources of the Han located at Yangpyung, which is represented at this workshop.

Besides the urban problems caused by the massive population concentration, a concept of 'maeul' is fading in cities including the metropolitan area. During the process of a rapid industrialization and urbanization, maeul fell apart, and traditional, beautiful- and familiar- sounding names of maeul in Hangul or Chinese expressing natural phenomena or legends in each community have gone (e.g. jeal-gol, bam-gol, chan u-mul, baem-gol). Maeuls were replaced by 'dong' after areas were rearranged into squares suitable for development administration. For example, the village where I was brought up had a name in Chinese character which meant 'village with flying butterflies', but later it was divided into eight 'dongs', and each 'dong' is now identified by number. This rearrangement was carried out from 1960s to 1980s purely for the benefit to political administration. As a result, local residents have lost the special feelings towards their maeuls. The last people to be genuinely born and bred there have now become old, and even the name of the maeul is also disappearing quickly from people's memories.

As is widely known, a government-incentive program called the 'Saemaeul(new Maeul) Movement' was promoted as a local grass-root activity. Under the slogan, 'For a Good Life', this became a large-scale grass-root activity for local development with the involvement of rural residents. It is regarded as a model example, successful to a degree hardly paralleled elsewhere in the world. Researchers into this movement still visit Korea from South-East Asia. But there were also many unfortunate side effects, because under this community-building program, a Western modernization model was accepted unconditionally while all our own traditions and customs, and our culture – even in relation to basic matters of clothing, food and housing, were rejected. The housing improvement project replaced straw-roofs with tin-roofs. The traditions which had developed around 'seo-nang dang', was abandoned; this was a worship place for maeul patron gods, where a tree was placed as a symbol of the community. Things which had been preserved by our ancestors as our traditional cultural heritage, have been brutally rejected and denied, including 'jang-seung' (pairs of male and female wooden statues placed outside maeul as guardians) and sodddae (poles for hanging a bag of seeds, to pray for a good harvest).

Following the growth-centered development principle, chemical methods of agriculture were introduced to all the villages in order to promote the mass-production of food. (It is said that Japanese agricultural machinery also played a part in this.) The chemical fertilizer industry became one of the core industries of Korea. Huge numbers of factories connected with export industries such as the heavy chemical industry began to sprawl along the Rivers Han (Seoul metropolitan area) and the Rivers Nag-ddong (Gyeong-sangdo area). Wherever such factories were built, people moved in, and abandoned their hometown. In rural areas, only old people were left, therefore many schools were shut down. Meanwhile industrial areas started to suffer from serious pollution, as seen in Onsan disease, but this did not become a serious social problem until the Dae-gu phenol Incident in early 1990s.

During this period, the 'Democracy Movement' was also a major theme, as a protest against development dictatorship . At the beginning of the 1990s, when a civilian

government came to power, many hidden problems about society came up to surface. Local elections revived after more than several decades. The 'Maeul Movement' has also attracted increasing attention, and has been spreading across the nation in recent years.

(2) Community Building in Korea

Korea's Maeul Movement follows several different patterns. One of these involves local governments' initiative. Yangpyung's 'Environment-Friendly Agriculture' led by the County Executive and administration staff is a good example of this sort of a maeul building program. Other examples are the 'Maeul of Bicycles' in Sang-ju and the 'Maeul of Fireflies' in Mu-ju. These are all cases where local government initiatives have been at the heart of new local community-building projects. The measures taken by local governments to reactivate communities include designating car-free roads, painting walls, making small parks, etc. Recently the administration branch offices based in every dong have each been transformed into a 'Local Residents' Initiative Center'. These centers are implementing a wide range of participatory educational programs, and inspiring much hope for the future.

Since 1996, local governments have been making particular efforts to create a new local vision that is compatible with its adoption of Local Agenda 21, and to implement this as a program based on participation by residents. Korean Council for LA21 has been established, and promoting networking.

The second pattern is based on the 'Zaiya Development Movement', which was at the forefront of the democratization movement in the 1970s and 80s. Activists who had originally gone to rural areas to solve poverty problems, were impelled by their experience with locals and their villages, gradually shifted their agendas beyond these economic issues to include eco-system preservation and environmental protection. A typical example of this activity is the 'Clean Water Maeul' in Pusan. There is also a movement to create a "Maeul Charter".

The third pattern is the 'eco Maeul' movement which has its basis in organic agriculture in areas with a traditionally strong foundation of local activities. 'Maeul of Bellows' in Hong-seong is a good example. The fourth one is based on NGO initiatives, which have become increasingly active since the 1990s. YMCA, with its nationwide network, is conducting the 'Beautiful Maeul Building' movement. The YMCA 'Fence Removal' program of Dae-gu is spreading to the other areas as a model practice. This is a small-scale project to pull down the fences which had separated neighbors, in order to formulate a new local community. Some environmental NGOs conduct eco-maeul programs. Under the 'back to the agriculture' movement that followed the recent financial crisis, new institutions (e.g. Head Quarters of Return to Agriculture Movement) are in operation to offer applicants a variety of education programs and support programs in the areas where they settle.

Finally, there is an experimental project called the 'Eco Mountain Village' program, conducted with government support and led by a group of experts in ecology, nature

conservation and landscape building. The 'Maeul Study Room' project, which is run by residents of Pusan and Yang-ji Park in Sadang-dong, Seoul, are other well-known examples of new local community-building activities, which started as government projects.

(3) Problems of Maeul Programs

Projects aimed at new community building are regarded as new challenges for Korean society, and are being vigorously implemented. But the maeul-building movement is still at an early stage, and faces problems that need to be solved.

First, no clear vision for the movement has yet been presented. In many cases problems to tackle have been identified, many small-scale programs (like local environmental education) have been implemented in order to encourage local residents to participate, but there has been no clear statement of the vision at which maeul should aim. In particular, efforts to pursue the globally-recognized concept of sustainable development, and to create a blueprint for a sustainable society to implement this, have been rather weak. Because it is formulated in individual local communities with the participation of local government, civic groups, local experts and companies, LA21 is being touted (in conjunction with its respective action plans) as an approach that can remedy the problems. But there are many hurdles to overcome even at the level of formulation and implementation. The problems include lack of finance, expertise and information, low awareness among local residents due to lack of education and publicity, and a low level of participation by residents.

The second problem is this issue of poor participation by residents. We are still faced with the problems of having a residents' movement without residents, and a citizens' movement without citizens. This situation resulted not only from residents' lack of awareness of the significance of their own participation, but also from the loss of local identity which has occurred during the few decades. Egoism and the individualism that comes from a nuclear family-centered attitude, have been spreading in Korean society. Materialism is also part of the problem. Excessive pursuit of an affluent lifestyle and of economic growth has led to ignorance about eco-system destruction.

The third problem is lack of information. Information exchange between maeul is not yet functioning adequately. LA21 National Council and regular joint meetings of civic organizations comprise a large part of existing exchanges, but on the whole, these are still small-scale meetings with a relatively small number of participants. One of the reasons of this lack of information, which is typically Korean, is the lack of a recording-keeping culture. I have heard that the Japanese have the custom of keeping records diligently. Koreans have no equivalent. History starts with recording. Our negligence in record-keeping will cause a lack of the information which any society ought to accumulate; it also threatens to deprive us of our history.

Finally, there is the problem of lack of 'democratic training' in a civil society. Long year of

continuous dictatorship deprived Korean society of a 'discussion culture'. Organizing objections and protests is relatively easy, but for developing and implementing sustainable development models, it is vital to have democratic discussions and the consensus that can only be reached through these.
Although the problems mentioned above are substantial, many activities are currently being conducted in order to improve residents' living standards and to regain local identities. Great expectations are held out for the potential results of these activities.

(4) Green Maeul Movement by KSDN

Considering the current situation and to overcome the problems, KSDN has been implementing 'Green Maeul' Movement and 'Green Maeul Network' project, with the focus on support activities.

① Concept for Green Maeul Program Development on the Basis on Sustainable Development

KSDN started to organize a series of regular discussion meetings called 'Green Maeul Forum' in order to debate the contents of programs in which citizens can participate. Between 1999 and 2001, more than 10 such forums were held. The purpose was to choose a campaign theme so that each local community could conduct a variety of activities based on this theme. This year, 'Growing Trees along Roads' ('Maeul Trees') was chosen. Next year, a related campaign will be implemented nationwide.

② Annual/Biannual 'National Workshop for Building Green Maeul' for Information Exchange

This workshop is held every August or September, and local activists involving in new maeul-building activities participate for discussion, case study reports and inspection trips. The number of participants is limited up to around 40 in order to ensure fruitful discussion. This year it was held in Yangpyung.

③ Program Development at multilevel

KSDN has been working on development of programs in which a wide range of local residents can participate, and on implementing these on an experimental basis. It emphasizes programs for youths and university students, using schools as bases because these are basic social units in local communities. Examples of these programs are the 'Green School Building' and 'Green Campus Building' projects including an environmental audit which inspects schools from an environmental perspective, car-free schools, pedestrian-friendly schools, schools with forests, and schools that produce no food refuse.
There is a nationwide network between universities, and regular meetings are organized. This is the third year since the Joint Environmental Conference program of Korea and Japan started. The secretariat has been established in Dae-gu: it is called 'Green Network of Universities'. Guidebooks and textbooks of Green School/Green Campus Building have been also published, and students' seminars and workshops held.

A 'School to Protect Green Maeul' has also been set up in order to promote local volunteer

activities. Its purpose is to re-examine local environment, eco-system and history, and to study the local community from a new perspective. It also promotes a variety of local volunteer activities.

④ Green Maeul 21 Movement

KSDN suggests relatively small-scale LA21 programs, and also promotes these. Because cities are its basic unit for implementation, LA21 is not conducive to full involvement. KSDN has therefore chosen to cooperate with local residents in order to organize smaller-scale units such as maeul, housing estates and schools to establish the Maeul Agenda. As a result, many discussion meetings were held, and this year a number of communities, coordinated by NGOs, are formulating Maeul Agenda. A seminar for case study reports is scheduled to be held at the end of the year.

⑤ Citizens' Activities to implement LA21

KSDN conducts surveys to assess citizens' awareness, and promotes various educational activities (e.g. Green Knowledge Schools such as the 'Tree School', the 'River Han Eco-Culture School', and the 'Traditional Wisdom School'). To inculcate a routine of keeping-records about local ecology, culture and environment, programs such as 'Green Diaries for Young People' and 'Green Housekeeping Books for Housewives' have been promoted.

* A homepage for sharing case studies and information is currently in preparation. For details, please contact: greenvillage.or.kr; or ecovillage.or.kr.

Session 1 Discussion/Q and A

Shiraishi:

The theme for this session is communication among people, or between local government on the one hand and residents and NGOs on the other. I think that each of the presentations helped us to understand the nature of environmental communication, that is, an interconnection between all the stakeholders -- and how, in order for this to happen, both ideas and structures are indispensable.

As concrete examples of these, Mr. Tazaki talked about the 'Eco Money', Mr. Sugimoto, about the 'Agenda Forum' and Ms. Lee, about the 'Green Maeul'. They emphasized that through the ideas and structures, communication among people should develop into concrete activities, and that both integrity and comprehensiveness are vital during this process. It seems that a wide range of policies have been introduced in a variety of forms to achieve such developments. We were also told that national and local governments and NGOs such as the Citizens Environmental Foundation and KSDN should play a vital role.

It is through communication that people are connected, and through support from national and local governments that their activities are promoted. As a result, people and local communities gain 'civilian power' or 'residents power' – in Mr. Sugimoto's expression, 'local power'. This is, I think, the most important point that has emerged from this session.

Sato (Soft Energy Project, NPO):

I now realize keenly the significance of the idea that the local government and NGOs/NPOs should promote local empowerment. As Ms. Lee pointed out, it is urgently necessary to ensure that practical and meaningful information is communicated in each local unit. As an international conference next year in Kanagawa prefecture is approaching, we should be thinking in terms not only of local government initiatives, but also of the opportunity to empower NPOs/NGOs and people from diverse background.

I have a question for Kuriyama Town. Was it the town office who took the initiative or was it the local residents who became enthusiastic to promote the program? If it was the local administration, how did it form a participatory structure? I would also like to ask the Citizens Environmental Foundation if an effort to establish Agenda 21 program through a participatory process has been developed as a project. Coordination will presumably become very important. How has it been funded?

Tazaki:

There is a group called "Kuriyama Eco-Money Study Group". Prior to its inauguration, the Town held a workshop about eco-money. Actually no one had even heard of this before the town mayor told us about it and suggested that we should study it. To learn more about this unfamiliar concept, we invited Mr. Toshiharu Kato, one of the advocates for the movement. After this, the Town called for workshop participants from a variety of sectors to start the Eco-Money Study Group. Staff members of the Town Office also take part. But it is basically a gathering for private individuals who care about the town and wish to improve it.

Sugimoto:

There are several ways of participating. First of all, the Agenda Forum has six working groups, such as transportation and the eco-tourism, and the members can take part in whichever activities they want. The implementation of the Agenda should not be limited to the activities of the Forum, but should be connected to a variety of other activities. For example, when a member of the Citizens Environmental Foundation who is also participating in the Agenda Forum want to conduct an activity, he/she can apply for a grant from the Agenda Forum for 400,000 or 500,000 yen. The only condition for this is that the activity should be consistent with the purposes of the Agenda Forum. Reporting the achievements of such activities and the lessons learned is also one form of participation. When the Agenda Forum cooperates in an event organized by the Citizens Environmental Forum, the members of the Agenda Forum are therefore able to obtain useful knowledge from this.

I also think coordination is essential. In fact, it is also one of the principal challenges that the Agenda Forum must face. The membership fee is very low – 1,000 yen annually for individual members. This is far from enough to run the organization. In reality, most of the cost is covered by the commission fees from Kyoto City. The secretariat is also run by the city staffers. But this arrangement is rather uncomfortable. Why? Because it is awkward for City Office staff to perform a leadership role in such activities. Therefore we reached an agreement to hire full-time staff for the Agenda Forum. At the moment, there is only one full-time, paid coordinator, who came from the Citizens Environmental Foundation. Three others are working part-time. It took three years to make this happen. But we still feel that more coordinators are needed.

Shiraishi:

What is the situation for Local Agenda 21 in Korea?

Kwak:

The problem in Korea is that there are not many local residents who join the LA21 activities. Generally, the environmental organizations whose activities are based around the national center, Seoul, or organizations supporting the democracy movement, have been taking initiatives. In that sense, Japan is ahead of us for community building.

Session 2

Sustainable Strategies for Rainwater Utilization in Urban Area

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1. Introduction

Communities throughout the world face problems related to water. The problems vary only in degree and include such concerns as droughts and floods, drying up of springs and groundwater, eutrophication of lakes and ponds, pollution of rivers, contamination of groundwater, and unsafe drinking water.

Water is a key to the sustainable development of society. According to the United Nations, if current trends continue the human population will reach over nine billion people by the middle of the twenty-first century. Most of the increase is now taking place in developing countries, and it is believed that this trend will continue. Along with the population increase an enormous growth in demand for food will arise, and corresponding to that, huge demand for water. Another ongoing trend is the accelerating concentration of people in cities; it is thought that by about 2025 close to two-thirds of the world population may be living in cities. It is no exaggeration that new urban development patterns and sustainable water strategies will both be important keys to global environmental strategies.

2. Shifting from Water Dependence to Self-Reliance～From Off-Site to On-Site

Until the present day the water resource policies of many cities of the world have been based on the idea of drawing urban water from great distances of up to hundreds of kilometers away. Tokyo is no exception. Since it was accepted that the city's water supply was inadequate, dams far from the city became necessary. Most of Tokyo's piped water supply comes from dams along the Tone (pronounced "toe-nay") River system, about 150 kilometers from the center of the city. According to the 1999 water budget drawn up by the metropolitan government water resources that would be an equivalent of 828 millimeters of rainwater were brought to Tokyo from outside the city limits. This is equivalent to 59 percent of Tokyo's annual average rainfall of 1405 millimeters, and most of it came from the Tone River water system.

But this policy of increasing dependence on the upper reaches of the watershed is beginning to lead to a dead end. In 1987 rain did not fall upstream for a long time, causing a serious water shortage in Tokyo and surrounding the Kanto area. Saying that development of the upper reaches of the Tone River watershed had reached its limits, Shunichi Suzuki, then governor of Tokyo, proposed the Shinano River Watershed Scheme. The main concept was to draw water

from the Shinano River, which is outside the Tone watershed, into the Tone River. The then governor of Niigata Prefecture, Takeo Kimi vehemently opposed this scheme, saying that "seeking water resources in another prefecture just because your own water is in short supply is too simplistic." Dam construction in the upper watershed would submerge many houses and fields and mountain woods, and destroy the culture of hill country villages that existed over centuries. Because it is never easy to gain approval from people whose homes will be submerged, completion of the dam construction would take a long time. Compensation to these people, and compensation for the submerged land increases over time, resulting in higher construction costs.

There are no further prospects for the development of large dams in the upper reaches of the Tone River, and construction of dams already proposed is only progressing slowly. In addition, dams that have already been constructed are filling with silt, reducing their water storage capacity. Tokyo must change its approach and reduce its dependence on water resources in the upper watershed. New water policies should aim for water self-reliance by using nearby sources as much as possible, including rainwater, groundwater and recycled sewer water, and progress with water conservation is essential.

Seeing rainwater as only a nuisance, Tokyo had always sought ways to eliminate it quickly through the sewers. This approach virtually ignored the potential to use rainwater as a water resource, although the 2.5 billion cubic meters of rain that fall on Tokyo in a year exceed the 2 billion cubic meters of piped water consumed. This rainwater should be taken as a resource and actively used. The lesson that we need to claim urban rainwater as a resource and to change from "off site" to "on site" water sourcing is the lesson from the experiences of Tokyo's past water resource policies – for Japan and for the world .

3. What must be done

Under a new paradigm introduced above, as cities strive for self-reliance of water supply and the revival of local hydrological cycles, practical issues such as the following will need to be addressed.

1) Institutionalization

First of all the storage, permeation into the ground and utilization of rainwater, as well as water conservation and recycling of sewer water should be codified into laws and regulations, and institutionalized so that they become a part of the fabric of society.

In 1982 Sumida Ward in east Tokyo requested the Japanese Sumo Association install rainwater facilities for water used in the National Sports Stadium. Based on this initiative's

successful implementation, almost all public facilities in the ward were subsequently adapted to use rainwater. In addition, unique facilities for rainwater use known as *rojison* were set up by the efforts of local residents, making the use of rainwater a popular topic among both governmental personnel and citizens. After the two-year period starting in 1993, when Sumida Ward installed more rainwater use facilities than in the previous ten years, the ward carried out an analysis of the effectiveness of the use of rainwater in the city. It concluded that the use of rainwater had spread throughout the whole ward and that the rainwater facilities, known as "mini-dams," had been effective for irrigation, flood control and disaster prevention. It reported that based on certain assumptions, if rainwater utilization was expanded to thirty percent of facilities within the ward, the number of times that sewer water would be discharged into the river from the sewer pumps would be cut in half. In addition, in times of drought or disaster ward could supply eleven liters of water per person per day for about one month without relying on water from outside the ward.

Based on these results, in March 1995 the ward established "Rainwater Use Promotion Guidelines." The gist of the guidelines was first that in future rainwater utilization facilities should be installed at the same time as constructing new ward facilities. Second, developers of large-scale developments should be instructed and advised to use rainwater. Third, rainwater tank facilities for citizens should be subsidized. In October of that year, a subsidy programme began for rainwater tanks installed by citizens. By March of 1999, 114 rainwater tanks had been installed under the programme. At that time the total storage volume of facilities using rainwater in Sumida Ward had reached about 8,000 cubic meters, and rainwater "mini-dams" were continuing to grow in use throughout the ward.

In a place like Sumida Ward where the water table is high and the rainwater does not permeate far into the ground, the rainwater utilization system is based on accumulating rainwater and then using it. However, in areas where rainwater can permeate well into the ground, it is appropriate to consider water permeation into the ground, together with the use of water, from the perspective of sustaining the local hydrological cycle. In the future, water policies must take into account and institutionalize a combination of rainwater storage, ground permeation and utilization, making allowances for the local conditions.

In Tokyo, the average family consumes about 250 liters of water per day per person. In contrast to this, in Germany, about 140 liters are used, and in Berlin, an effort is being made to reduce this to 80 liters. If Tokyo residents managed to reduce consumption to the level currently consumed in Germany, they could achieve annual water savings of about 470 million cubic meters, or about 27 percent of the approximately 1.73 billion cubic meters of pipe water supplied in 1995. In the future, in order to achieve self-reliance in water local governments should switch to a demand suppression approach, which could include ordinances promoting water conservation and rainwater utilization, setting of clear objectives for the spread of both

of these. In addition, policies could be introduced making it mandatory for not only public facilities, but also private facilities, to install rainwater utilization and water conservation equipment.

2) Incentives

To progress in making systematic changes in society, new incentives must be created. On this point government leadership is very important. It must not only show leadership through its own initiatives to promote self-reliance in water resources and the restoration of local hydrological cycles, but also support citizens' efforts and strive to integrate these approaches in society. Specific examples may include subsidizing facilities for using rainwater, devices for rainwater permeation into the ground, devices for water conservation or facilities for recycling sewer water, and reduction or exemption of charges for water utilities. Local governments that subsidize rainwater tank installation by citizens numbered 25 throughout Japan by August 1999, including not only Sumida Ward, but also Takamatsu City, Kawaguchi City, Tama City and Katsushika Ward. In Germany subsidies are also provided for facilities that help conserve groundwater, in addition to those that utilize rainwater. New York City has been successful by subsidizing water-conserving toilets. In Germany, some local governments have a system whereby they charge water utility fees when rainwater is discharged directly into sewers, allow an exemption of fees if rainwater is properly utilized. Such a system does not yet operate in Japan, but should be considered in the future.

3) Technology Development and Training of Technical Specialists

It is important to further develop technologies and train specialists in these fields. Technological advances are needed for inexpensive and efficient equipment to conserve water, facilities to use rainwater and devices to promote the rainwater permeation into the ground. Together with this is the need to train specialist with a thorough grasp of the technologies. At present the amount of water consumed in one flush of Japanese toilets is 12 to 13 liters. Compared with this Germany toilets flush only 6 liters the goal is 4 liters in the future. National and local governments should urge manufacturers to improve their technologies on products, which consume large amounts of water, such as toilets and washing machines. Governments should certify the best products and encourage their use. Similar initiatives could promote equipment that utilizes rainwater and promotes rainwater permeation into the ground. Fukuoka City established official measures and guidelines that encouraged water-conserving devices after an abnormal drought in 1978 and achieved success in popularizing them.

The German association “fbr”, consisting of architects and other specialists in the use of rainwater, organizes seminars aimed at developers from various parts of Germany. The

activities of this active group also include responding to design inquiries from the general public about facilities for rainwater use. In Japan there is not yet this kind of activity by people in the industry. There is now an urgent need for the development of groups of technicians well versed in design, construction and maintenance in the fields of rainwater management, the permeation into the ground, conservation of water, the multi-stage use of waste water, and water recycling.

4) Networking

Finally, in order for this kind of social system to continue in a sustainable way, networking among governments, citizens and industry within the country is important, in order to discuss together the key issues relating to water strategies. This is true not only of Japan but also throughout the world. In addition, in order to bring about sustainable new development patterns on a global scale, it is important to encourage regional exchanges and networking of these three groups internationally. Today Japan is carrying out advanced activities relating to rainwater utilization, ground permeation, and water conservation and it is hoped that in the future Japan will make a positive international contribution in these areas.

Local 'Water Circulation' and Rainwater Utilization

Minami-Ashigara City, Kanagawa Prefecture

1. Towards a Sustainable Community

Minami-Ashigara City is located in the west of Kanagawa Prefecture. The City enjoys diverse nature and abundant, high-quality water resources with forests covering two-thirds of the city, a good quantity of rainfall and the biggest spring in the metropolitan area.
However, water resources, regardless whether they consist of surface water, spring water, or ground water, neither exist infinitely, nor can they be used unlimitedly. We must understand that 'water is a resource that circulates', and promote strategical maintenance for water sources, conservation policies and water resource development based on the idea that water is a public and municipal property.

In March 1993, Minami-Ashigara City adopted the 'Water Master Plan' as a basic (core) plan for water use in order to secure the future water supply and to hand the town's rich greenery and water to the next generation. The Master Plan aims to promote water policies which will deal with local water circulation and institute measures at each step in the process from a comprehensive standpoint.

There are two water sources inside the City. Establishment of a local water circulation system to ensure a healthy circulation of water will become a foundation for building a sustainable community where abundant water can be used for a wide range of purposes by future generations. Taking this view, community building in Minami-Ashigara is based on a harmonious land use which in turn is founded upon a secure water supply.

The City's water resource policy based on the awareness that water is an indispensable foundation for civic life and industry, is to maintain indefinitely the condition where the benefit conferred by natural water circulation is kept free from any fundamental damage.
The features of the City's water policy can be summarized as follows.

- To establish a system for local water circulation (promotion of comprehensive water policies)
- To focus on measures to nurture water sources in the forest area as a top priority
- To conduct scientific surveys for assessment in order to understand the groundwater flow, distribution, different lines of water flows and circulation system
- To analyze a simulation of water input and output, and groundwater movement, in order to understand the amount of groundwater potentially available for extraction and the effects of such extraction
- To make the maximum use of water resources (spring water, surface water, groundwater) and sub-water sources (such as rainwater)

・To implement comprehensive water resource measures in a planned manner when no problem in the water circulation is identified
・To promote measures which combine secure quantative water provision and qualitative water protection

2. Development of Individual Measures

(1) Measures for water resource nurture in forests

The surface soil of forests in Minami-Ashigara is permeable and preserves water effectively, which means that the forests have a high potential for water resource maintenance as well as for controlling water amount, purifying water and conserving water quality. This nurturing capacity of forests directly depends on the water permeability of the soil. Appropriate management of the soil and of geological conditions is vital for maintaining and improving this function.

To ensure the water supply and improve the water maintenance potential of forests, good forest management and conservation policies that are suitable to the local features, are required. These also promote ideal forest management for water resource nurturing with abundant soil and trees.

A. Care for forests
- Promotion of forest care (pruning, thinning-out, cutting, planting trees, etc.)
- Maintenance and management of permeability by forest soil care
- Planting beech trees
- Use of 'Ashigara Green Culture Fund' (introducing fruit trees as part of forest care)
- Cooperation with prefectural government for managing forests as a water resource

B. Protection for forests and trees
- Purchase of woodland areas and trees

C. Designation of protected areas for water resource nurture (inside forest areas)

(2) Appropriate use of groundwater

Groundwater conservation aims at promoting appropriate management for groundwater and groundwater usage on the basis of a scientific clarification of the underground structure and groundwater circulation, as well as at realizing groundwater nurture.

A. Groundwater management under the ordinances on water resource conservation and use
- Registration for groundwater extraction
- Monitoring of groundwater levels and water extraction

- Appointment of a manager responsible for groundwater use
- Establishment of a Basic Plan for Water Resource Conservation and Use

B. Scientific examination of groundwater

C.Survey of water input/output and analysis of groundwater movement simulation

- Estimation of future potential levels of groundwater extraction
- Assessment of impact levels associated with groundwater extraction

(3) Creating water-related amenities

Waterside areas along rivers and canals have the potential to contribute to the formation of a natural environment, civic amenities, and recreational opportunities. Water provides a soothing and relaxing adjunct to individual life and the community environment. Distinctive and attractive measures will be promoted by creating more waterside amenities and by identifying water as a major factor for community building and local development, with due consideration for harmony with the local environment.

A. Initiatives to optimize use of rivers, canals, etc.

B. Initiatives to optimize use of springs

C. Initiatives to optimize use of agricultural water

(4) Promotion of soil permeability (lowland area)

Paddy fields, rivers and canals play important roles in nurturing groundwater in the city's lowland area. Implementation of measures to develop the groundwater nurturing potential of paddies, rivers and canals will therefore improve the groundwater nurturing capability of the lowlands.

A. Improvement for permeability at waterside (rivers and canals)

B. Introduction of perennial water flow in agricultural canals

C. Underground rainwater catchment (catchment tanks, permeable pavement)

D. Utilization of unused paddy fields

(5) Conservation of springwater

The city has a number of springs and natural waterspouts. These places should be preserved as water sources, and managed properly on the basis of scientific knowledge of their functions for water nurture.

A. Monitoring springs and natural waterspouts

B. Analysis to understand the structure of springs and natural waterspouts

(6) Rainwater Use

Annual average rainfall in the city is just over 2000mm. This abundant rainwater has become a precious local resource for the city. It can complement other water resources (springwater, groundwater, surface water). Having defined water as one of the basic factors in community building, the city promotes effective use of rainwater as part of its water resource policies, and encourages rainwater use in cases where drinking-quality water is not necessary. This also helps water conservation.

Rain is a basic element in the city's water resource policies. All the measures assume a regular amount of rainfall. Rainwater flows out to the rivers through various water passages, except for that portion which remains under the ground, and cannot be used. Therefore the city takes measures to catch and store rainwater, and also promote awareness among the citizens about 'keeping water sources secure', 'rehabilitating local water circulation', living with rain' and 'recognizing the existence of water'.

A. Project to divert use of septic tanks for rainwater collection
B. Rainwater use at the city's recycling centers (for toilet, fire protection water)
C. Monitoring rainwater catchment tanks

Looking at the Local Community from Water Flow

Tetsuro Yoshimoto
Director, Department of Agriculture, Forestry and Fishery, Minamata City
Secretary General, Association of Local Studies

Introduction

For everyone concerned, the rehabilitation of Minamata started from the environment. Particular aspects of daily life - like water, plants, air, rain, soil, light, noise, food and waste – provided the scenes for rehabilitation activities.

The city of Minamata spreads along the Minamata river (total length of 22km) which runs from the mountains including 901m-high Mt. Ozeki into Shiranui Sea. Minamata became notorious for its industrial pollution the like of which the world had never seen before. But in recent years, a wide range of activities to improve conditions of water, waste, food, etc. have been implemented and the city is regaining its energy.

For waste collection, waste is separated into 23 different types by citizens, and it is divided into as many as 84 types by the City Office operation for recycling. Several programs to reduce waste are making good progress. These include the Women's Conference for Waste Reduction, that established an agreement with shops to abolish plastic food trays, and has conducted an audit to certify 'eco-shops' in order to promote environment-friendly retailing. This organization created the title of 'Environment Meister' for those who committed themselves to the production of safe food.

I would like to explain about Minamata's efforts concerning water from the perspective of 'looking at the local community through the water flow'.

1. 'Water Map' made by 'Yorokai Minamata'

In 1992, 'Yorokai Minamata' (a community gathering), a group of local residents, started to make a map of the water flow, followed by a similar activity, making a 'Local Resources Map' which shows what is available in the city. This was to answer the questions, 'do you know where the water you drink or use is coming from? Do you know where it's going?'

Included in the survey were mountain tops and ridges, watersheds, rivers, dams, forests, agricultural fields, ponds, wells, community boundaries, agricultural canals, water supplies (small scale), private water supply systems and domestic water sources, and shrines connected with nature ; guardian of mountains, rivers, water, fields, harvest, and fire).

Session 2

1.1 Purposes

- Local residents should use their own initiative to conduct research into water use closely connected to their daily life, such as drinking water, domestic water, agricultural water, as part of the process for Minamata rehabilitation; this is information which only those who have conducted the research know in detail.
- By examining what living with water means, and connecting the findings with the seas and rivers, with mountains and forests, the relationship between nature and daily life can be understood, and the concrete actions which need to be taken are identified.
- The water flow, and its significance for Minamata rehabilitation, can be understood.

1.2 Findings

- Household wastewater goes into the paddy fields to irrigate rice, so that the rice we eat has been irrigated by our own wastewater.
- We sometimes wash pots and pans in lakes, and give the leftovers to carps so as not to waste them. This is in fact good to keep the water clean.
- The reason why water was clean and pure when there were no combined type private sewage treatment systems or sewerage systems, is because people then used water with care, thinking that they should not waste it and that this water would come back to them in due course.
- Domestic water sources are taken care of by the members of the family, and private water supply systems are maintained by the community. In contrast, with a public water supply, an administrator runs it while consumers pay, and complain whenever there is water shortage or stoppage.
- When most users of the water supply system turn on the tap, they cannot see the forests that lie beyond the water. On the other hand, users of private water supplies and domestic water sources must take an interest in rain and forests to ensure an adequate water supply.
- Water canals through soil have trees and grass on their sides which function as natural purification tanks. Paddy fields and small streams provide fish and dragonflies with spawning - grounds.
- Village landscapes were 'landscapes made by water'. If you looked from a river at land use, you would see, along the river, forest, paddy fields, agricultural canals and roads beside the canals. There would be a garden on the road, and the main building of the house stood facing the garden. On the left hand, to the west, there was a hut. On the agricultural canals, each house had a washing-spot. At the back of the house, each family had a source for drinking water. Around the house, were spread the agricultural fields, in which there grew more than 80 types of useful plants including plants for New Year decoration, and various herbs, as well as persimmons, chestnuts and plums. Further beyond, there were coppice woods to provide wood for fuel and materials to make wooden tools. Houses were located at

the foot of the mountain to avoid strong wind and to ensure drinking water supply.

- Local residents thought that they knew about their drinking water, but in fact, they did not. (Especially about the connection between water and the forests that contain water sources, and the connection with the sea, etc.)
- Changes in rivers, sea, forests and road construction have an impact on the amount and quality of water, but identification of the reasons and formation of the measures to be taken still need to be sorted out.
- Rivers have been straightened and the banks covered with concrete. Mountain roads become canals after heavy rain, with a vast amount of water running very quickly down them. Thinking about the environment led to a slowing-down of the water flow.
- There were shrines of mountain gods at the tops and ridges of mountains, and of water gods at water sources, and giving thanks to forests and water for their blessings was part of people's lives. These places were regarded as sacred, where cutting trees or cultivating land were evil acts to be punished.

1.3 Findings

Based on the findings of this research, important places have been included in the basic environmental plan as mountain-deities, river deities, water deities and ocean-deities to be preserved and rehabilitated. It has been decided that prior to public works, the environment should be considered under the guideline of environmental consideration at public works which was defined in environmental management system.

Currently, these findings are used to govern the usage of useful microorganisms for purifying household wastewater and the promotion of combined type private sewage treatment systems, and to create picture maps like 'Scenes of Water' and 'Climate and Daily Life of Eastern Minamata'. They also provide basic materials for green tourism to re-activate degrading mountain areas. They have been useful for the founding of the 'Museum of Village Life' which is scheduled to start in 2001.

2. Confirming Distinctive Local Characters

While conducting research, we discovered that some things we thought we knew turned out to be actually not known, and that we tend to pay attention to things which do not exist but miss those which do exist. What we discovered made us turn to the climate, daily life and their changes which we always took for granted. This led us to understand the distinctiveness of local character.

Sometimes while travelling abroad, people over-react to their surroundings by either over-praising or rejecting them. This phenomenon is called 'identity shut-down'. The reason is

lack of self-knowledge and self-confidence. The same thing can be said about local communities. If they don't understand what they are, they are forced to accept changes from outside in their daily life and culture, and as a result, cannot achieve a community with a distinctive character, a cultured background or stylish quality.

3. To Avoid Becoming an 'Intellectual Colony'

Unless a local community gets to know the ground beneath its feet before it becomes involved in matters governed by external economic and cultural forces, it suffers the same fate as colonies which merely provide resources and labor, and the movement towards community building is short-lived. If the only research that is done, is done by commission from outside, the community will become an intellectual (information) colony. (p.18, 'Local Studies of Wind and Earth', Tetsuro Yoshimoto)

Conclusion

To track the water flow beneath our feet is, after all, to examine aspects of our city we did not know about, and to explore places where we thought there was nothing, and to make a picture map so that hidden places can be revealed. Only by taking a new look at local conditions, can a healthy community be created. Such a community will have a proper connection between nature, production and daily life, and will possess a creative power. Minamata must not allow the lives of more than 10,000 victims of Minamata disease to count for nothing; and it has started by taking consideration of water, waste and food.

Rainwater harvesting
—a sustainable approach for integrated ecological management in the semi-arid mountainous of China

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Background

China is facing with serious water scarcity when entering the new century. In the semi-arid loess plateau of Northwest and North China, things are much worse. The water resources per capita are only 230 m3/head. Exploitation of water from rivers is difficult owing to the fact that most of the lands are high beyond and far away from the river and also because most of the river base flow are salty and can be used neither for drinking nor for irrigation. Owing to the geological condition, groundwater is also very little and even though, most of it is bad in quality. The agriculture relied thoroughly on the unfavorably distributed rain. Most rains concentrate in the period from July to September while in the springtime when crops need water most the rainfall is only about 20% of the yearly total. Drought occurred frequently. Crop yield is very low that the harvest can hardly meet the demand of rapidly increased population. The low land productivity forced farmers to cultivate all the land for their food supply. Without water condition, most cash crops cannot be grown. As a result, the agriculture structure became a monotype one. The annual income per capita including the food harvest is as low as 100~150 USD. The most serious problem is that for centuries, millions of people in the areas cannot get sufficient drinking supply.

Aridity caused poor vegetation and thus serious soil erosion. The erosion modulus is as high as 5000~ 10000 t/km2 annually, accounting for yearly loss of soil layer of 0.5~1 cm in averaged. Development of gullies and ravines destroyed the cultivated lands. Deterioration of vegetation was speeding up because of continuous uprooting all straw and grasses for fuel use. To ensure the food supply, the farmers reclaimed as many lands as possible, even on the land with steep slope, regardless of the low yield. There was a saying: “the poorer they are, the more they reclaim and the more they reclaim, the poorer they would be”. Under this kind of vicious cycling, the land was degrading and environment was deteriorating in an accelerated speed. The area is the key area for poverty alleviation in the State and Provincial plan. Especially when the strategy of great west development has started implementation, to change the situation in the area becomes very urgent task.

Solutions

In the past 50 years, how to address the issues in the areas has attracted much attention of the government agencies and scholars. Efforts were made for changing the fundamental conditions of the area and many of them were within the traditional dry farming measures. The principle was to keep the water in the rainy season in the soil and to make best use of the soil moisture in the dry spell. This includes to reform the land to retain more rainfall, such as terracing, contour planting, cultivation measures like plough, harrowing and tillage, mulching, plastic sheeting and reasonable fertilizing as well as to breed new varieties adapting to the existing rainfall condition.

These measures have been proved to be effective in enhancing agriculture level but in limited extent. The main reason is that the soil porosity is not far from enough to bridge the gap between time that crop needs water and the time that rain occurs, usually the gap will extend to 6~8 months. Experiences indicated that only by adding artificial water supply, even with a small quantity, to the traditional dry farming measures, could the combination be brought to a full play. Problem is how to get the water. The only potential and easy to exploit water resources in the area are rain. Although the annual precipitation in the area is only 300 to 500 mm, but they can be intensified both in spatial and temporal and this is what a RainWater Catchment and Utilization (RWCU) for. It is to collect, store and regulate the rainwater by adopting engineering measures. RWCU as a measure against drought in dry farming area is a thoroughly new idea with that of the conventional measure. It is aiming at to control and regulate the rainwater to meet the crop demand and is a more effective way to use.

Role of RWH in integrated ecological management

The research, demonstration and extension of the RainWater Catchment and Utilization (RWCU) projects were started in 1988. Experiences proved that RWCU can be effective in the following aspects:

● It can provide clean, reliable and affordable water source to those living in the impoverished area without access to surface and groundwater. In Gansu the 1-2-1 rainwater catchment project has preliminary solved the water supply problem for 1.2 million of rural people from 1995 to 1996. Each family got one enhanced catchment to collect rain, two water cellars (underground tank) for domestic and irrigation water supply and one piece of irrigated land for the courtyard economy.

● It can provide irrigation water to enhance the agriculture productivity thus contributing for food security. Based on the principle of insufficient (limited) irrigation, simple but high water-use-efficient method is adopted. From the year of 1996 to 2000, in Gansu province,

there were about 2.18 million of storage tanks being built supplying water for domestic use of 1.97 million people and irrigation of 236,400 hm2 of land. Crop yield was increased by 40% comparing to those without water application.

● With water in the tanks, the farmers can produce water-sensitive cash crops according to the market need. With RWCU, profitable agriculture helps income generation. According to an official report, land for cash crop and orchards accounted for 24420 and 40440 hm2, respectively, including 1570 hm2 of greenhouses. The RWCU is a way for poverty alleviation.

● RWCU also played a significant role in promoting the ecological and environmental conservation. Enhanced land productivity enables farmers follow the government's guidance for returning the reclaimed land on the steep slope to forestation or grass planting. In the year of 2000, about 47,700 h of slope lands were shifted for tree and grass planting, for which availability of water from the RWCU is the pre-condition for tree survival. In addition to the rapid increasing of orchards as a part of the ecosystem, the developing husbandry asks for grass planting, which also improves ecological environment.

From the ten year experiences of promoting the RWCS, four ways has been summed up for the development of the mountainous area: terracing + plastic sheeting + RWCU + structure modification. Among the four, RWH is the basic factor since the other three can be realistic and effective only when water is available and RWH is the only way here to produce water. The experiences verified that the RWH is able not only to enhance the production level but also at the same time promote the ecological and environmental condition under the semi-arid and mountainous condition. RWCU is a decentralized solution using indigenous resources, adopting appropriate technology with affordable cost, with potential of wide mass participation. In a word, it is the sustainable approach for integrated development in the semi-arid mountainous areas.

Session 2 Discussion/Q and A

Shiraishi:

We often hear the expression, 'Think globally, act locally'. Through the presentations, I understood that a global point of view was vital to connect Asian people at local level.

It was also revealed that the water problem would be one of the key issues for the 21st century. Heightening awareness of this problem should get more attention. Especially as water creates problems including business disputes and even war, they should be solved based on the initiatives of the local societies and communities which will recognize them as their own problems. The large-scale construction projects involving the commercial sector and the government are unlikely to improve the situation. I think this was the main point of the suggestions.

As is mentioned in the resume, involvement and empowerment are the key factors in promoting projects at community level. Mr. Yoshimoto vividly described this point. Indeed, only researchers acquire learning; only those who have tried, can obtain the abilities; only the parts which have been worked on, are improved.

Another finding through the presentations is that not mega-projects but local efforts to find solutions are the most important. As far as public works are concerned, internally-driven development is replacing the conventional externally-imposed development. This involves replacing 'the yearning for the unavailable' with 'the search for the available'. Bringing something from outside is the basis of the former case, and it is, in a way, an intensive solution. Prof. Zhu pointed out that the solution should be non-intensive and decentralized, therefore, we should look for resources available locally and make use of technology that is manageable in the area. This is exactly what 'internally-driven' development is.

For example, Minami-Ashigara City has taken a multidisciplinary and inter-related policy approach rather than pursuing separate individual policies. As we discussed in the morning, in order to realize a sustainable society, a multidisciplinary and comprehensive approach, rather than an exclusively environmental one, is necessary. I have a strong impression that our discussion here today will help us find an answer to how to change the conventional methods in which local development has been left to market forces and public works.

Thus, genuinely new community building, and a sustainable method of local revitalization, can be both discussed at the same time. I think that this is one of the key messages from today's case study presentations.

Horikawa (Kanagawa Prefecture):

I feel a great sense of intellectual excitement arise from these fresh perspectives on community building. I would like to ask a question to Mr. Murase. You are wearing two hats as a local government officer of Sumida Ward and also as the secretary-general of 'Japan People for Promoting Rainwater Utilization'. You visit places including Gansu Province where Prof. Zhu is from, or Taiwan in order to promote information and technology for rainwater utilization as a part of international cooperation. In which of your capacities do you undertake these missions, as a local government officer or an NGO member?

Murase:

Actually, both. I sometimes go with permission from my office. I used to have to take leave, but now my trips are half official, half personal. When I take leave, my status is

the secretary-general of the 'Japan People for Promoting for Rainwater Utilization', and when I go with official permission, it is as a staff member of the Ward. Let me give you an example. The Rainwater Museum, open to the public since May 2001, was founded following a request from the executives of the Ward, who said they wanted to make an 'international rainwater museum', and I asked 'Japan People for Promoting Rainwater Utilization' to take charge of the project. I thus perform two roles, as do probably a lot of people present here. I suppose that this sometimes puts us in a sensitive position.

Shiina (Setagaya Ward):

I would also like to ask a question to Mr. Murase. What was the first reaction of the Office when you presented your plan, how has your experience been since then, and what is the best way to promote such programs?

Shiraishi:

I would like to ask the same question to Mr. Yoshimoto. He has an extensive experience in community work.

Murase:

Wherever you work, in Korea or in China, in the community or in the administration, you need to have established firm roots in the institution before you can get new ideas accepted. Without this, even a good suggestion will probably not go further. Daily networking and communication can help. The nature of information is the give-and-take principle. In the beginning, very often, there is much to give but hardly any response to take. But there are always some people watching you carefully, and gradually support comes to you.

The reason why I became involved in rainwater use is quite simple. My first job was at the Sumida Ward Health Center. 20 years ago, there was a flood in the area, which, because of the urban conditions, caused sewage water to leak into an underground tank for drinking water for a building. Some dozens of people drank this contaminated water by mistake. I could not let the matter go and keep quiet. I originally specialized in pharmacy and microorganisms. This issue was beyond my expertise. But I gathered friends who specialized in civil engineering, construction, meteorology, etc. and we studied together. Through this experience I myself changed, and this change was also reflected in my work.

The Health Center clearly is not the obvious source for rainwater utilization. Nevertheless, it was my solution to the problem. I thought it was not only my problem, but concerned the whole of Sumida Ward, and then persuaded the head of the Ward that Sumida Ward should introduce my proposal as a part of its residents' services. The head who listened to me was certainly an impressive person. It was only my fifth year in the office, and I was just a low-rank staffer. It is normally difficult for a person in my position to speak to the top of the organization. But thankfully, I had the managers, the directors, and others to support me in talking to the Head.

This could happen only because it started from my direct experience of holding discussions with the residents, or sometimes being shouted at by them. They said, 'Do something about the flood!' I said, 'I am sorry, but I don't know what to do.' 'We don't accept that as an answer. Do something useful!' The important thing is that you should never forget the residents' point of view while working. The scientific research, or

scientific mind, was also very important. I myself thought first that the problem was the backward surge in the sewer. But while continuing my research, I came to realize that the problem lay in the city structure. I realized that the problem was difficult, and that there was no easy solution. The sewage system has been established. We could not strip off the concrete to uncover the city, and rebuild it.

This led us to the idea of storing rainwater. We discovered that the amount of rainwater was significant and became convinced that it would be useful. I am grateful to my office for appreciating my personal onsite investigation. I am often told, 'You have been fortunate to have such understanding bosses.' In fact, my bosses come and go all the time. The situation is probably the same in other local communities. Establishing roots is essential. As someone mentioned before, it is an area of 'Local Studies'.

Yoshimoto:

It has come to sound like a life therapy session, hasn't it? (laugh) Where the problem is, that's where the solution is. Which means, the only thing you can do is to go to that place. The place is your teacher; the community is your teacher. That's what I think. I suppose Mr. Murase, too, keeps asking the question, 'why? why?' Usually you can go to someone who knows the answer. But if no one can give you the answer, you have to learn yourself. That's the way it is.

A Minamata disease patient once told me, 'I have suffered from the hellish torments. But I cannot change the tormenter. So I have to change myself.' In other words, to change other people, you have to change yourself. I think so, too. We must concentrate on what we can hear, and keep asking why, and then talk, in our own words.

I would like to warn you that the word 'resource' is dangerous although it is used in the context of 'from the yearning for the unavailable to the available'. I think it should be replaced with 'existing things'. The concept of resource implies dividing things between those that are useful and useless. In reality, a lot of things that were not regarded as resources have turned out to be valuable resources. We should not become treasure-hunters. I would say that nothing exists unless it has a context and a meaning. Finally I would like to add my interpretation for 'Think globally, act locally' as 'Talk big, act moderately.' Please keep this in your mind, too.

Zhu:

My presentation was about rural sustainable development, and rainwater utilization as a tool for this. Maybe this sounds rather irrelevant to the 20% Club workshop in search for sustainability in cities. But challenges for sustainability in urban and rural areas are two sides of the same coin. Urban areas are surrounded by rural areas. Without sustainability in the rural areas, the cities will not be able to achieve it, either. Therefore sustainability in cities cannot be sought for while leaving the rural communities behind.

Murase:

Today's focus was on urban rainwater utilization. But rainwater is an important resource for both rural and urban areas. In my understanding, one of the conclusions is that both areas should reconsider rainwater as a potential resource in order to build a sustainable society. A further important question, as Mr. Hibino and Mr. Yoshimoto mentioned, is how to rehabilitate the water circulation system. It surely should begin with learning about the water surrounding us.

When I had a discussion with the former mayor of Soka City, Mr. Imai, now a member of the House of the Representatives, he said 'to manage water is to know water'. This is exactly what we are discussing today. To know water in the community means to understand how water flows in a given catchment area, and how water circulates: which is nothing less than to understand the rain that falls on our heads. I just want to add one more comment. We must now take a fresh look on the geographical position of Japan, China and Korea. What I mean is that we are all children of the monsoon, who share the benefits of its wonders. Our sky binds us together, and makes us friends. For that reason, I sincerely hope that today's discussion will lead us to continue our exchanges, for the pursuit of urban and rural sustainable development. And the keyword shall be, 'rain'.

Session 3

Overview of Local Agenda 21 Implementation in China

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Sustainable development represents the most important breakthrough and progress in the evolution of humanity's philosophy of development. Many countries used to believe that development means economic growth, regarding the growth of the Gross National Product (GNP) as the primary or even only objective. Later, satisfaction of the basic needs of society and the populace became an overwhelming concern for governments around the world. However, these endeavors created many unresolved problems. Little surprise, then, that the advancement of the concept of sustainable development created instant resonance around the world, becoming a universally accepted principle and developmental strategy.

Implementation of the sustainable development strategy, therefore, is the call of the times and a remedy for the problems confronting humanity. For China, the issue becomes more acute as the country faces severe resource and environmental constraints. A coordinated development of the population, economy, society, resources and the environment is imperative. The idea is that the present generation needs to create a sound ecological environment and room for development for future generations. Only through sustainable development can China truly enhance its national strength and lay a solid foundation for long-term growth.

Since the late 1970s, China has been implementing a policy of reform and opening up. With the transition from a planned to a market economy unfolding, deep-rooted problems caused by an overemphasis on economic growth at the expense of resources and the environment have surfaced. To remedy the situation, the State Development Planning Commission (SDPC) and the Ministry of Science and Technology (MOST) launched a pilot program to implement local Agenda 21s and build sustainable communities.

In March 1996, the Chinese government officially declared “sustainable development” a state policy in a landmark document, Outline for the Ninth Five Year Plan (2001-2005) for National Economic and Social Development and Long-Range Objectives Through the Year 2010. Local Agenda pilot areas and sustainable communities have since assumed major importance in charting out a course for adoption of sustainable development on a national basis. After years of hard work, much progress has been made in this program.

Social Practices

In November 1997, the SDPC and MOST jointly issued a document deciding to select a host of

localities with different characteristics as pilots for implementing China's Agenda 21. Based on applications submitted and recommendations from the provinces, the following eight provinces (Beijing, Hubei, Guizhou, Shanghai, Hebei, Shanxi, Jiangxi, Sichuan) and eight prefectural-level cities (Dalian, Harbin, Guangzhou, Changzhou, Benxi, Nanyang, Tongchuan and Chizhou) were selected.

On another level, 34 state-level and nearly 60 provincial-level sustainable communities were created between 1992-2000 under the auspices of the SDPC and MOST (see the appendix for list). These are divided into three types: urban, county/city, and township. They operate in accordance with the principles of "government organizing, expert instructing, public participating and society undertaking."

Progress Made

Between 1993-1996, the UNDP assisted China with two programs: "developing and implementing China's Agenda 21" and "incorporating China's Agenda 21 into national economic and social planning". These two programs greatly spurred on the process of the Chinese government designating sustainable development as a state policy. Another UNDP-assisted program, "local Agenda 21 capacity-building", has played an equally important role in advancing that process. At present, 25 provinces, autonomous regions and municipalities have formed leading groups and relevant bodies for driving local Agenda 21 and more than two dozens of provinces have drafted action plans for implementing local Agenda 21. The majority of provinces have conducted training in sustainable development.

The 16 pilot provinces and cities, on their part, reached new heights in moving the local Agenda 21 program forward. In the 34 state-level sustainable communities, located in 23 provinces, a lot of publicity activities have been launched to enhance public awareness of sustainable development. In Shanghai, for example, a sample survey was conducted and a popular reader, 100 Examples of Unsustainable Lifestyles, was compiled and published. In addition, the city dredged up Suzhou River, which runs through the urban areas, and improved the environment dramatically. Beijing, on its part, made efforts toward optimizing energy structure, improving the air quality, protecting water sources, providing community-based medical services and saving water. The six core pilot provinces and cities, combining the UNDP program with local needs, have conducted a series of activities to promote local Agenda 21.

Pioneering Sustainable Development

The main objective of the pilot program is to explore viable models for implementing sustainable development in light of local conditions. A number of models have been created in

the pilot provinces. These include:

Jiangxi: This central Chinese province has developed a comprehensive strategy for curbing its environmental problem while alleviating poverty. This strategy integrates the cleanup of lakes with cleanup of rivers and vegetation of mountains. To do that, efforts must be made first to eliminate poverty. In line with that, the province drafted plans seeking to achieve steady economic growth for the near and long term while ensuring sustainable utilization of resources and common prosperity among members of society. To this end, Jiangxi set up 26 experimental bases for various projects such as comprehensive development of mountainous resources, leveling of red-earth hilly areas, reclamation of sandy soil, comprehensive development of lake, and soil erosion control. These 26 bases further spurred the establishment of 112 large farming bases.

Benxi: This northeastern Chinese city, a major supplier of industrial raw materials such as iron and steel, coal, building materials and chemicals, was once known as a "city invisible to satellites". The international community was very concerned with the city's environmental pollution. To tackle it, the city government developed a seven-year plan to clean up the environment. That plan was approved by the National Environmental Commission and earned the city the status as a pilot city for environmental cleanup. Over the last seven years, Benxi spent 480 million RMB (US$60 million), completing 44 cleanup projects. It created a "two-tier government, three-tier management and four-tier implementation" system. At the same time, it has stepped up law enforcement and industrial retooling. By 1999, the city had, through adoption of clean-production techniques, reduced the discharge of 15.9 tons of oxides, 1,223 tons of COD, 43.6 tons of oil, 716 tons of dioxide sulfur, 314 tons of dust, and 20.8 tons of solid wastes. As a result, the quality of air has improved remarkably and 37 sources of waste water have all been brought under control. Two residue piles have been cleaned up and recycled. An area of 32.8 square km has been singled out as a smog-control zone, and air visibility averages 85% monthly within a distance of 10 km. In addition, water quality at the source measures up to Class II for ground water. In vegetation, 96.6% of barren hills and 92.5% of roads and riverbanks have been vegetated. Residents are beginning to see blue skies and clear waters again. The city government also took the lead in the country in promoting ISO14000 environmental certification.

Hebei: To sustainably utilize its limited water resources, Hebei has developed a set of Regulations on the Conservation of Water and promulgated them as government decrees. These regulations seek to encourage water-saving through preferential policies and regulations, water-price reform, application of water-saving technology and enhanced public awareness of sustainable development. In October 1999, the province held a workshop on sustainable development of water resources. Participants included representatives from county/city regulatory departments and from large water-consuming enterprises. In addition,

to improve the efficiency of water consumption by industry and service sectors and by residents, Hebei launched a series of water-pricing reforms with Shijiazhuang, the provincial capital, as a pilot. A model water-saving farm has also been created in Sanhe for well irrigation.

Improved Regulation

From the outset, the pilot program seeks to secure compliance through voluntary choice rather than through external enforcement. Therefore, the traditional planned-economy way of creating preferential policies for and injecting large amounts of capital into the projects was shunned; instead, the initiators seek to create a new regulatory mechanism compatible with the emerging market economy to promote the pilot program. Throughout the process, emphasis was placed on two reforms: the transformation of government functions and the deepening of economic restructuring.

On the local level, Puding County, Guizhou Province was innovative in rebuilding its ecosystem. The county government joined hands with the China Land Society and Beijing Hongji Industries (Group) Technological Development Co. in reclaiming small-river valleys which were lost to soil erosion. Measures taken in this regard include planting cash-generating trees, improving the fertility of farmland, building water-conservation facilities, building terraces on slopes, and building roads. This model has come to be known as the “five-in-one” model: experts, government, enterprises, investors and farmers all working together. It has also been characterized as “promoting development through opening and promoting reconstruction through development.”

In institutional building, the principles of “guiding and promoting coordinated socio-economic development through science and technology” and “government organizing, experts advising, public participating and society undertaking” have been put forward and several mechanisms have been forged. These include a review and evaluation mechanism whereby a group of experts review and appraise applications for being labelled a state-level experimental zone. Appraisals are based on evaluations of both the physical and institutional aspects of the applicants. A second mechanism is called the Expert Advisory Committee which in turn consists of a state-level advisory body and local panels of experts advising sustainable communities.

In addition, a monitoring mechanism has also been created to track progress. Since 1993, expert teams consisting of social and natural scientists have been dispatched to conduct longitudinal studies tracking developments in the sustainable communities. Through these inspections and checks, successful experiences have been promoted and problems identified and resolved.

Chizhou, Anhui: In April 1999, Chizhou held a training workshop on practical technologies for eco-agriculture. Visits were organized to other provinces more advanced in eco-agricultural

development and a demo tea farm was built which uses organic fertilizer instead of chemical fertilizer and botanical pesticides instead of chemical pesticides for ecological purposes.

Foreign Participation

At a time when China is making a historic transition from a planned to a market economy, all measures taken to promote the pilot program should be consistent with the way a market economy operates. For example, unlike previous programs, government funding and preferential policies have not played a significant role in the implementation of the program; instead, the emphasis has been placed on giving full play to the initiatives of localities and encouraging them explore models most suited to their unique conditions.

This new approach also made it possible for foreign participation. The clean-production project at Beijing Beer, the ecological reclamation project at Alashan Prefecture, Inner Mongolia, the poverty-alleviation project in Jiangxi and another clean-production project in Benxi have all utilized international capital, technology and managerial expertise. The introduction of foreign capital, in particular, spurred local governments to increase spending in sustainable development. International experience and participation have proved an effective avenue for implementing sustainable development on a local level.

New Thinking on Development

Through workshops, seminars and study sessions, local officials and business leaders have familiarized themselves with China's Agenda 21, the government's policies and developed a new thinking on development, one that balances economic growth with social and environmental implications. Officials are role models and they set good examples. Through them, the public has become increasingly active in participating in sustainable development initiatives, particularly those that involve their daily life and work and their community.

Hubei, for example, held training classes for over 1,000 leading officials on sustainable development theories. Shanxi, in like manner, organized training programs for senior officials, including the provincial Party secretary, the governor, the chairmen of the provincial NPC and CPPCC. Shanghai, on its part, built sustainable communities with local characteristics out of four types of candidates: urban districts, suburban counties, neighborhoods and townships.

Greater Efficiency

Since the pilot program involves many government departments, it is very important to coordinate and harmonize efforts made by all the parties. Ministries and commissions at the central level give priority to sustainable communities in allocating projects of an experimental nature; in like manner, provincial government departments, superior departments of the sustainable communities and experts in different areas have each played their due part.

Showcasing

Model projects are also a major component of the pilot program. Often, these model projects were built in urban communities. In Xuhui District, Shanghai, Hengshan Road has been built into such a model community with an amicable environment and a rich cultural touch. The Western District, Beijing has also built "green communities" (green streets, green schools and green shops). Shenyang, Liaoning Province built residential areas that are green, quiet, beautiful and safe.

These model projects showcase the essence of China's Agenda 21 in ways that ordinary residents can relate to. Furthermore, they directly benefit residents, thereby helping shape public attitudes toward sustainable development.

A High-Caliber Team

A team of cadres with a strategic vision and determination and an army of devoted and committed activists are instrumental to the success of the sustainable development initiative. Ever since the drafting of China's Agenda 21, government officials, researchers and experts from across the country and across different disciplines have been working together for the same goal. It is a bonding and training experience as well as a working experience.

With the publication of China's Agenda 21 and local agendas and action plans, a great number of activists have emerged, many of them form the backbone of the movement. Local governments have given them various awards and honors to recognize their contributions.

International Cooperation

Many provinces and cities have conducted international exchanges and cooperation, adding to the momentum of local activism. Hubei, for example, sent people to study abroad and established contacts with organizations in the United States, New Zealand, Britain and Hong Kong. It also invited New Zealand experts to participate in an atmospheric and water pollution project in Yichang and reached a memorandum of understanding with them.

Nanyang City, Henan, a land-locked agricultural city with an underdeveloped city, has forged ties with a dozen countries and regions, such as Canada, Sweden and Japan and reached agreements with them in a number of areas. They launched a Sino-Swedish Agenda 21 Cooperation project, held an international workshop, and signed an agreement with Sweden's Umland Province. They also implemented a demo project in collaboration with the Iowa State University, with the Iowa State assisting Nanyang Polytechnic College setup an environmental education program. The two sides have also cooperated in areas such as EM technology, environmentally sound treatment of urban refuse, control of urban automobile exhaust pollution, and network building for Nanyang's sustainable development. Nanyang has also attended international conferences on Agenda 21 as an official delegate.

Organization and Administration

Organizationally, the 16 pilot cities are divided into two categories: one consisting of eight provinces and autonomous regions and another of eight prefectural-level cities, all directly administered by the SDPC and MOST. The sustainable communities, likewise, are divided into state-level and provincial-level and administered accordingly. The central government formed a leading group for implementing the sustainable development strategy, with members coming from various ministries and commissions. Under that group there is an executive office in charge of day-to-day operations. At the provincial level, similar bodies have been set up to administer local sustainable communities. Host governments, as the undertaker and organizer, have established leading groups and executive offices to coordinate administration.

The sustainable communities were created for a period of six years and will be completed in two stages, each lasting three years. Host governments of sustainable communities are responsible for executing plans and submitting annual reports. MOST, on its part, has built demo projects inside the sustainable communities to solve critical problems facing the sustainable development program. At the end of the third year, a thorough review will be conducted and at the end of the sixth year, the administrative authorities of the sustainable communities will submit work reports and inspection applications to the National Experimental Zone Office. An inspection group will be formed to review work done by the sustainable communities and will reward and honor those that have passed the inspection.

Appendix 1: List of state-level sustainable communities (as of December 2000)

1) Changshou City, Jiangsu Province
2) Huazhuang Township, Xishan City, Jiangsu Province
3) Dafeng City, Jiangsu Province
4) Guizhou Township, Shunde City, Guangdong Province
5) Shenhe District, Shenyang City, Liaoning Province
6) Luozhuang Township, Linyi City, Shandong Province
7) Hengdian Township, Dongyang City, Zhejiang Province
8) Qiu'ai Township, Yinxian County, Zhejiang Province
9) Yangxunqiao Township, Shaoxing County, Zhejiang Province
10) Guanghan City, Sichuan Province
11) Zhaodong City, Heilongjiang Province
12) Mouping District, Yantai City, Shandong Province
13) Maoji Township, Fengtai County, Anhui Province
14) Zhengding County, Hebei Province
15) Jinniu District, Chengdu City, Sichuan Province
16) Suburban Hefei City, Anhui Province
17) Changdao County, Yantai City, Shandong Province
18) Western District, Beijing
19) Zhongxiang City, Hubei Province
20) Mengzhuang Township, Huixian City, Henan Province
21) Zhulin Township, Gongyi City, Henan Province
22) Qingxi Township, Dongguan City, Guangdong Province
23) Jinggangshan City, Jiangxi Province
24) Longbao Administrative Committee, Wanzhou District, Chongqing Municipality
25) Linzhou City, Henan Province
26) Huashan District, Huayin City, Shaanxi Province
27) Beibei District, Chongqing Municipality
28) Baishan City, Jilin Province
29) Zezhou County, Shanxi Province
30) Jiangyin County, Jiangsu Province
31) Jiang'an District, Wuhan City, Hubei Province
32) Huairou County, Beijing
33) Rizhao City, Shandong Province
34) Zixing City, Hunan Province

Appendix 2: Local Agenda 21 Pilots

1) Beijing City	2) Shanghai City
3) Hubei Province	4) Guizhou Province
5) Hebei Province	6) Shanxi Province
7) Jiangxi Province	8) Sichuan Province
9) Dalian City, Liaoning Province	10) Haerbin City, Heilongjiang Province
11) Guangzhou City, Guangdong Province	12) Changzhou City, Jiangshu Province
13) Benxi City, Liaoning Province	14) Nanyang City, Henan Province
15) Tongchuan City, Shanxi Province	16) Chizhou City, Anhui Province

Session 3

'Love for Pure Water' & 'Environment-Friendly Agriculture' Projects in Yangpung

Min Byung Chae
County Executive, Yangpung County

A great crisis created by humanity's exclusive pursuit of an affluent life, is destroying the precious planet, Earth. If present conditions continue, some say that the Earth is doomed to die within 50 ~100 years. In this critical situation, the priority which Yangpung is giving to the implementation of its 'Love for Pure Water' and 'Environment-Friendly Agriculture' Projects provides a model for human symbiosis with the environment on the Earth. The success of these two projects therefore resonates even at an international level.

Fire-flies had disappeared from Yangpung County, but now we are beginning to see them again. Fire-flies cannot survive in poor-quality air, and need a habitat where the water is pure enough to sustain food, a particular type of shellfish. Soil that is too polluted to sustain their pupae also precludes their survival. The reappearance of fire-flies thus means that the natural environment of Yangpung has been entirely rehabilitated. This is an event of historic significance.

The present conditions of Yangpung can be seen in the slides. As these show, the success of Yangpung has been supported by two world-class, high-level projects: one is 'Love for Pure Water', and the other 'Environment-Friendly Agriculture'.

Yangpung decided that only these two would lead the community towards the 21st century. Local residents have made an extraordinary effort resolute to implement them, and now successful results are visible. These can be summarized as the 'creation of an Eco-Doctor's Town'. The reasons for this success are ①voluntary participation by residents; ②strong leadership; ③coordination of social conditions.

'Love for Pure Water' is one of the priority policies of Yangpung County. 30.5% of the total budget is provided for this project, which is rather unusual. The central government has been implementing a 'pure water preservation' policy. Meanwhile in the county at a local government level, all the residents are actively involved in implementing the 'Love for Pure Water' campaign. Starting with the front page of official reports, the slogan can be seen all over Yangpung.

The high-level of participation by local residents, owes much to the careful explanations given to them about the details of county policies and to their understanding in return. The County Executive went anywhere to talk about the county policies even to small reunion parties, and made great efforts to explain difficult-sounding issues to a wide range of audiences from children to elderly, male and female. As a result, a lot of NGOs working on this issue have

grown up. It is also important that water had changed in people's attitude, from 'enemy' to an object for 'love'. On top of this, the County implemented some pilot measures for infrastructure building. The result was to maintain BOD in the nearby lake, drinking water source for 22 million people, at around 1.4 - 1.8ppm.

Promotion of 'Environment-Friendly Agriculture' is also a chief priority among the four major county policies, and is allocated 20.8% of the general budget. The 'Environment-Friendly Agriculture' policy is designed to foster the protection of soil, the production of clean water, the preservation of natural environment, and ultimately the survival of human being on the Earth.

Local resident participation is very important for the project. First of all, each community (maeul) chose a 'leader farmer', and these were organized in their respective ri (bottom-tier organization). Each ri organization was connected to a *upp* or *myong* (mid-tier organization), and these in turn combined to form at county level, a union (upper-tier organization). In addition, the body created to promote all this, the 'Environment-Friendly Agriculture Promotion Committee', has been wholly centered on local residents, who have played a comprehensive role in all stages of the work from planning to implementation.

The project promoted a "3 Don'ts" Movement (i.e. Don't use pesticide, Don't use agricultural chemicals, Don't use chemical fertilizer), and a "3 Dos" Movement (Save habitat for locust, Save habitat for fire-flies, Create field of scare-crows) throughout the county. As a result, compared to 1997, use of agricultural chemical was reduced by 46.2%, Chemical fertilizer by 21.8%, and use of organic fertilizer was increased for 144%. At present, 44.5% of farmers in Yangpung are practicing 'environment-friendly agriculture'. The measures used in various part of the world have been tried for experimentally including BMW (active water) and Chitosan Agricultural method.

The success of the project owes everything to participation by local residents. Here the crucial factor has been the lead taken by residents in local governance. Currently in Yangpung, local residents visit the county office freely and involve themselves in decision-making as much as managers, directors, and chairmen. Despite the fact that Yangpung County is a government organization (GO), it joined 5 major national non-governmental organizations (NGOs) as a member. This was unprecedented in Korea and no similar example exists abroad.

It is the active participation by local residents that has led the 'Love for Pure Water' and 'Environment-Friendly Agriculture' Projects to success.

The logo of Yangpung expresses the vision of the county, symbolizing 'pure water' and 'environment-friendly agriculture' with its main characters: 'water and love', and symbols of environment-friendly agriculture - locust, fire-fly and scare-crow. Much attention should be paid to the factors which promoted the success of the two projects; increased support from the central government and world-wide mutual recognition are also needed.

Session 3

Tanushimaru Town Support Project for Greening Deserts

Yoshihiro Miyazaki
Representative, Greenery Support Group

1. Purpose

At present, a total area of 60,000km2 in the world (equivalent of the combined area of Kyushu and Shikoku) becomes desert every year. Tanushimaru Town supports the Japan Association for Greening Deserts that has taken initiatives to prevent advancing desertification on the global scale, and provides necessary personnel for desert-greening projects. The town is one of the major suppliers of pot plants and saplings in Japan, and in the 3rd Master Plan, has defined its basic principle as 'A Greenery Support Base that Serves the Whole World'.

2. Background

In 1990, in order to get detailed information about desert-greening activities, a research team from the Town visited a leading expert of desertification, Prof. Toyama (Emeritus Professor, Tottori University) who had started an afforestation project in Hobq Desert, China, and later founded the Japan Association of Green Action for Deserts in 1992. In 1991, prior to starting the project, as a part of preparation, the Town invited Prof. Toyama to give a lecture explaining the necessity of this project and its contents to the residents. The necessity of implementing the project was defined clearly in the Basic Plan for Local Revitalization called ' Local Construction Plan of Water, Greenery, and *Kappa* (a mythical river creature) ' and the 3rd Town Master Plan called 'Towards Green Kingdom Tanushimaru' (1992) with the phrase 'because Tanushimaru is a town based on greenery industry, it has the mission of making an international contribution through greening projects'. When Prof. Toyama's lecture was given in the town for the second time, more people came and showed interest in environmental issues. The project started in 1992 and had its 10th anniversary this year.

3. Summary

The project has been funded by the Town. For 4 years between 1992 and 1995, a total of 9 people from the Town Office and residents were sent as members of the 'Green Support Corps' organized by The Japan Association for Greening Deserts. In 1996, the 5th year of the project, the Town organized 'Tanushimaru Corps' and dispatched 10 people. In 1997, the Town organized 'Kyushu-Tanushimaru Corps' which include 5 local residents funded by the Town Office, and people recruited from all over Kyushu (self-funded). In 2000, the Town's achievement was rewarded with the 'Town Open to the World' Prize from the Ministry of Home Affairs.

In 2001, celebrating the 10th year of the project, the Town included 7 junior-high school

students in the party so that the young generation could learn about the global environment, the necessity of greening projects and the importance of international cooperation. The total number of participants (including those self-funded) reached 34, the highest since the program started.

The party was sent to China for 8 days, August 22-29. After arriving at Beijing, 2 more days were spent for a journey with night-train and bus to Hobq Desert. For 3 days, the participants planted poplar trees under the supervision of the local staff while staying in accommodation adjacent to the Japan Association for Greening Deserts. They also visited the local primary school, and donated towels and stationary such as pencils and notebooks.

4. Achievements

Year	Nos. of participants dispatched (public funded)	Nos. of self-funded participants	Activities
1992	1 (staff)		
1993	2 (staff, resident)		
1994	2 (staff)		
1995	4 (publicly recruited)		
1996	10 (publicly recruited, staff 1)		3,084 poplars planted
1997	5 (publicly recruited)	12	sand movement barrier installed
			1500 poplar planted
1998	5 (publicly recruited)	6	764 poplars planted
1999	5 (publicly recruited)	8	sand movement barrier installed(337m^2) 159 pine trees planted
2000	5 (publicly recruited)	8	777 poplars planted
2001	15 (publicly recruited, students)	19	561 poplars planted
Total	54	53	

Note: Total numbers of trees planted for 1991-99: 2.5 million;
Total Participation: 1992, 6 teams, 307 people; 1999, 57 teams, 1069 people (Japan Association for Greening Deserts)

5. Challenges in Future

I have participated in the project and been to China 4 times. Unlike equatorial deserts, the deserts in China have a high potential for greening through tree-planting. Greening project in Hobq started one year before Tanushimaru Town started to dispatch their delegates. This is the 11th year of the project and 3 million trees have been planted.

This achievement inspired the Chinese government to designate a day for planting trees when companies plant allocated numbers of trees. This development is mainly thanks to Prof. Toyama's contribution. But it is said that it will take at least another century to complete the

greening of Chinese deserts.

10 years have passed since Tanushimaru Town joined the project. Arguments that it should now cease are currently heard. This is very regrettable. While continuing this for 100 years would obviously be problematical, the argument that the 10th year is an appropriate time to stop is rather immature.

The participants acted voluntarily. So should Tanushimaru Town. Nevertheless if we consider the facts about the global warming and desertification, and the capacity of Tanushimaru, the 'Green Kingdom', the conclusion is obvious.

Hobq in Inner-Mongol Autonomous District is the closest desert to Japan. The amount of yellow sand blown from there to Japan increases every year. The industrial area of Baotou close by causes acid rain. Greening deserts in China is in fact also good for Japan. The project should not be stopped until it has achieved significant results.

Our town suffers from the decrease of numbers of waterside animals. This is in a way desertification. When the environment we are living in, or the town, is suffering, it is surely our duty to make changes.

Session 3 Discussion/Q and A, and an Concluding remarks

Takada (Setagaya Ward):

I have three questions for Mr. Min, County Executive of Yangpyung County. First of all, what sort of position is given to the NGOs that work together with the County authority in the Council office, and how were these chosen? Secondly, how do you conduct your survey about public servants' level of kindness? Unsympathetic attitudes by public servants towards citizens are often controversial in Japan, too. The third question is whether the measures taken for sustainability have created any economic advantages. You presented many examples of measures you have taken for environmental conservation. I think that the sustainable measures must incorporate a balance between environmental issues, health issues and local development issues. So did such activities yield any profitable results in economic terms? For example, did 'Environment-Friendly Agriculture' increase harvests or sales prices, or did it have a positive impact on the tourism industry in areas as eco-tourism?

Min:

The County office is basically open to any NGOs who wish to participate. But because in reality, we cannot take unlimited numbers of people, we take one representative from each NGO without regard to size of the organization. In the early days, resistance from the County office staff members was strong, and they were reluctant to work with the outsiders. There were problems such as the need to keep certain documents hidden from the NGO representatives. But after a year, they became used to each other and accepted the situation.

The kindness survey is conducted by about 120 NGOs in Yangpyung. They use telephone calls and personal visits to ask questions. We receive evaluations from NGOs, too. As it is anywhere, the sections which have made efforts are praised, and those which performed unsatisfactorily receive a warning.

Environment Friendly Agriculture is an investment for the future. We do not expect immediate effects, and the farmers do not look for an instant profit. This type of agriculture cannot produce quick money, but in some aspects, there are good results. Rice produced by the conventional method does not sell well. Farmers are having a hard time to sell it. Environment-friendly rice from Yangpyung, on the other hand, is popular and is selling well for a high price. It is almost out of stock. Some economic effects are therefore apparent on a certain level.

Kwak:

I would like to ask Dr. Fu about the difficulties and constraints in implementing the LA 21 programs. What standards do you use to inspect and evaluate performances?

Fu:

The biggest difficulty is how to maintain a balance between the effect of these activities on the one hand, and the effect of economy, ecosystem and social benefit on the other. Chinese government evaluates local government performance according to GDP. This makes it difficult to evaluate the achievement of environmentally-concerned projects. Therefore the 'Green GDP' will be introduced as an index in future five-year plans. Monitoring and evaluation of the local governments' activities for the promotion of sustainable communities will also be included. The evaluation system has been created so

that communities' sustainability can be measured by using standard of criteria. The index has made it possible to compare different communities. Those local governments and communities which receive high evaluation, get an increase in financial support.

There are three ways of evaluating local governments' performances. One applies to the national-level sustainable communities. These must each draft a sustainability plan and implement this. After three years, they will receive an inspection, and their achievement will be evaluated by comparing progress with the targets.

The second method is for local governments. Here priority projects are selected and promoted by the local authorities. Financial support is provided. Progress of the high priority projects is monitored. Under the third method, many existing sustainable communities are listed, and ranked in order of achievement. The basis of the ranking is evaluation of ecological, social, economic and safety aspects. More than 100 experts are involved in the inspection procedures required by the above three approaches.

Yoshimoto:

I have a question for Mr. Min. Are there any exchange schemes for information and opinions with residents in Seoul, and do those people downstream who will receive benefits from the project, make any financial contribution?

Min:

I think the cooperation between the upstream area, the water source, and the downstream area, of water users, is very important. Both because of requests from residents of the upstream area, and also because people downstream in Seoul do in fact receive benefits from this water, a water supply tax has been established and the proceeds directed upstream. Tax money from downstream areas is used for water quality conservation in upstream areas. Agricultural produce from the upstream area is also sold in cities like Seoul, with the cooperation of the Co-op and consumer organizations.

Yoshimoto:

How many visitors a year from overseas including Japan, do you have for inspection and information tours?

Min:

For example, this year, we had over 1,800 Korean visitors. I suppose the total number of visitors is vast. Often we receive Korean government officials from the Ministry of Agriculture, Forestry and Fishery and overseas visitors to the Department of the Environment. The key to agricultural success lays in adaptation to the local conditions. I believe that there must be specific farming methods suitable to each particular area. Farmers, researchers and administrators must cooperate to pursue such methods and implement them. With the support of the Agricultural Technology Center, we founded the University for Agriculture and Environment. This year it produced the third cohort of graduates.

Yoshimoto:

I would like to introduce you a wonderful phrase from Korea: 'The farming villages and the cities are inseparable'. In America, food travels as far as 1,600km. But in Japan, China and Korea, the distance between producers and purchasers is characteristically very short. Recovering an awareness of this point is, I think, important for the sustainable

communities. Korea is one of the roots for organic agriculture practices. Minamata's Environmental Meisters, who have the authorized qualification, often go to Korea to learn from the Korean methods.

Audience member:

I understand from the presentation that all the residents are taking part in building a sustainable community in Yangpyung. But how do they participate?

Min:

It is actually difficult to get everyone to participate in the campaigns. Normally I ask them to come to me and to learn what the projects are for. Then they might join. Step by step, people realize that such activities will lead to great benefits for their future. They are beginning to understand that environmental conservation can bring benefits to all of us. Initially there were some objections, but now almost everyone takes some part.

Lee:

I think that the desert greening project in China reported by Mr. Miyazaki has a significant meaning. The problems of flooding and industrial pollution in North Korea will effect South Korea. Therefore the South should help the North in some way. The measure taken by Mr. Miyazaki represents a big step forward towards building a sustainable society in Asia. Do you have any opinions about the North Korean problems? I would also like to know how you chose which trees were to be planted.

Miyazaki:

Thank you for your appreciation of our project. To keep the project moving, I believe, we should not think it as if we were doing it for others. The driving force for our desert greening project in China is probably coming from understanding that this will be good for us, too. This project is very relevant to our own life, and that is why it should be continued. I will not go to somewhere like the Sahara desert on the equator in order to stop global warming. It is more feasible to conduct a greening project in a place more directly connected with Japan.

About North Korea, I do not want to make a mistake. So I will refrain from comment, However, it is very true that environmental conservation will not bring food. It needs to be supported by economic power. For example, the present reality is that planted trees have to be used as fuel to sustain life. Unless attention is paid to such points, no effective methods can be adopted for issues like flood control.

The types of trees to be planted are chosen by the Association for Greening the Deserts. This organization arranges the activities in the local areas. Sometimes, I personally thought, the trees planted were unsuitable. Just as I had guessed, when we visited the place after one year, we found 100% of these trees dead. Such failures sometimes happen. Poplar trees are good because they grow fast, and if planted in an appropriate season, their roots will spread even from a twig stuck into the soil.

Shiraishi:

I think that we all learnt a lot from this workshop. Among these, there are three major points. First of all, communication beyond the national boundaries between people representing local areas is very important. International exchange and the local residents'

exchange are especially useful for promoting approaches and concepts for new development.

Secondly, as the expression we have so often repeated in the sessions, 'sustainable community', implies, we should make local societies sustainable by focusing on the local residents and the climate. At the same time, we understand that the process of the local residents' participation is just as important as the actual implementation of the project.

The third point is actually my own suggestion for the next step forward from the conference. In pursuing sustainable development, or a sustainable society, a balance needs to be maintained between the three factors of economy, society and environment. As was mentioned in the last part of our discussion, we must obtain the ways of measuring and evaluating these three factors. We need a way to measure the 'sustainability' of a 'sustainable community'. The countries in north-east Asia can cooperate in developing the evaluation standards and methods, although in the end, each country and each community must find its own way.

From now on, we should continue to exchange information, and should work together to develop a framework for evaluating the case studies.

20% Club for Sustainable Cities FY 2001

- Case Studies from the Workshop for Sustainable East Asia

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