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Newsletter Publication



ILSI Japan (International Life Sciences Institute Japan) is a regional branch of ILSI, the international, non-profit, scientific organization. Through a variety of activities, ILSI Japan aims to promote a well-informed understanding of the science behind current issues and to use science to improve problems related to health, nutrition, safety and the environment. On this the 30th anniversary of the founding of ILSI, we have decided to begin publication of this newsletter in both Japanese and English twice a year. It will be aimed at informing both ILSI and all the ILSI regional branches of ILSI Japan activities. It is our sincere hope, that this publication will be of interest and use to all those who receive it.



By Shuichi Kimura

Shuichi Kimura, Ph.D., President of ILSI Japan

The 5th International Conference on *Nutrition and Aging* "Nutrition Problems by Life Stages"

: By ILSI, ILSI Japan

The 5th International Conference on Nutrition and Aging "Nutrition Problems by Life Stages" was held from October 31 to November 1, 2007 at U Thant International Conference Hall, The United Nations University, Tokyo, Japan which was organized by International Life Sciences Institute (ILSI) and ILSI Japan. Around 200 of attendance participated from several fields.

Low-birth-weight infants seem to be connected with the growing number of overly-thin Japanese women?

At opening remarks Prof. Shuichi Kimura, President of ILSI Japan made an opening remarks. This conference was at first held in 1991 and then has been taken place at every 4 (four) years in

Japan. This time, organizer focused on several nutritional problems according to life stage, and planned three sessions based on them with the subtitle “Aiming for healthy aging” The first one is “Nutrition and risk of lifestyle-related diseases peculiar to each life stage,” the second one, “Fetal nutrition and risk of lifestyle-related diseases,” and the third, “Roles of nutrition aimed at QOL maintenance in the elderly.” In addition, a satellite symposium was also held to discuss “Consideration for Setting Upper Intake Levels for Nutrients”

Dr. Kimura introduced the situation of obesity in Japan saying “Obesity rates are increasing yearly especially in men. In contrast, curiously enough, obese women are decreasing in number and overly-thin women are increasing. There is a diet craze among Japanese young women.” And emphasized that, considering that epidemiologic studies have demonstrated that low-birth-weight infants have a higher risk of developing metabolic syndrome when they grow up, it seems more likely that dieting during pregnancy significantly increases the risk of metabolic syndrome. **A recent increase in the percentage of low-birth-weight infants in Japan does not seem to be unconnected with the growing number of overly-thin Japanese women.** I think that females being extremely underweight should be considered a risk of metabolic syndrome as well as male obesity.

One in two males and one in five females have prodromal metabolic syndrome

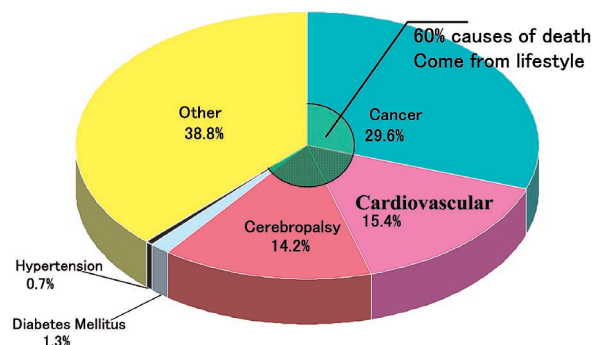
Then, Dr. Shaw Watanabe, National Institute of Health and Nutrition made the Keynote Lecture at the Session I (Risk of life-style related diseases and characteristic nutrition by Life Stage) Title of his lecture is “Obesity and Life-style Related Diseases in Japan: Role of Food Industry.” Abstract is following.

In response to rapid shift to aging society at an unprecedented pace in Japan, the Ministry of Health, Labour and Welfare has been implementing the national health promotion program called “Health Japan 21” across the country since 2000. The mid-term evaluation of “Health Japan 21” showed, however, that few goals have been achieved so far. The reality is that the morbidity of lifestyle-related diseases, such as diabetes, hypertension and hyperlipidemia increased, and no action has been taken yet to curve the increased medical expenditure.

It has been recently explored that visceral fat obesity is strongly associated with development and progress of the above mentioned diseases. Based on which, “metabolic syndrome (visceral fat syndrome)” is now defined as the conditions where one has abnormal levels in more than two out of blood glucose, blood pressure and serum lipid, in addition to visceral fat obesity. According to the National Health and Nutrition Survey in 2004, out of 57,000,000 people aged 40-74 years, 9,400,000 and 10,200,000 are estimated as metabolic syndrome and prodromal metabolic syndrome respectively. These figures, therefore, indicate that one in two males and one in five females have prodromal metabolic syndrome, hence higher risk in male.

Healthy Japan 21

Lifestyle related diseases



In session II (Fetal Nutrition and Risk of Life-style Related Diseases) Dr. Motoko Sakamoto, Professor of Wayo Women’s University made the keynote lecture titled Prevention of Life-style Related Diseases in Childhood and reported the intervention trials that were started at the community level in 1984 and have been continued for the past 25 years. The trials were conducted on children between the ages of 4-5, 9-10 and 12-13 who were living in the suburbs of a metropolitan area.

Individual counseling



The study consisted of physical and biochemical tests such as anthropometrical measurement, obesity, serum levels of cholesterol, blood pressure etc. At the same time daily activities, food frequency were investigated. The bodyweight of the participants was taken at birth to investigate the relationship between low body weight at birth and risk factors that followed when they grew up. The influence of a low birth weight was found in cholesterol levels for children aged 4-5 and 8-9. However, influences at the 12-13 year old age range were not found.

Satellite Symposium

Considerations for Setting Upper Intake Levels for Nutrients

By Food Safety Research Committee, ILSI Japan
International Council on Amino Acid Science

Following to the 5th International Conference on "Nutrition and Aging", Satellite Symposium was held on November 2, 2007 which was jointly organized by ILSI Japan, Food Safety research Committee and International Council on Amino Acid Science.

Its theme was "Considerations for Setting Upper intake Levels for nutrition". Totally 11 lectures were presented in all day.

Dr. Hideaki Karaki of University of Tokyo made the keynote lecture titled "Risk Analysis for Safety of Foods and Ease of Mind of Consumers".

He emphasized that consumers feel anxiety to food additives, pesticide residues, and vegetables imported from foreign countries which might be contaminated by these chemicals, in spite of the fact that the use of these chemicals are strictly regulated and there are no reports on health hazard caused by the chemi-

sons. The first reason is insufficient information. The safety of chemicals is based on the principle of dose-response relationship and scientific knowledge is necessary to understand this principle. People instinctually classify something they don't understand as unsafe. The second reason is the "zero risk myth". Many consumers misunderstand that natural foods are safe and chemically synthesized food additives and pesticide residues are making food dangerous. Few persons know that ordinary food is the major cause of cancer, and that vegetables and fruits contain "natural pesticides" the amount of which is much larger than pesticide residues and some of them are carcinogenic.

(quoted partly)

The 2nd International Workshop on Environmental Risk Assessment/Biodiversity Assessment of Genetically Modified Organisms

By ILSI Japan International Workshop Taskforce

The 2nd International Workshop organized by ILSI Japan, BIO committee, International Workshop Taskforce was held on November 2, 2007 at UDX conference room, Akihabara, Tokyo. Following is the background and summary of the conference.

Through the discussion among the stakeholder such as researchers, regulators and industry people world-widely, we would like to find the best way for the environmental risk assessment based upon science. For this purpose we had held the "1st International Work Shop on Environmental Risk Assessment / Biodiversity Assessment of GMO" in 2006. We have succeeded to introduce the principle of the risk which is (hazard x exposure) among the regulators, government and scientists in Japan. On the contrary there were some requests to know more concrete examples relating the risk among the world. So we consider that the lectures which are more concrete and focused on specific matters should be presented in 2007.

This is the second international workshop relating to the Environmental Risk Assessment/ Biodiversity Risk Assessment of GMO. We invited 2 speakers from US and EU. Ms. Denise

Dewar, an executive director of Crop Life International, USA, gave us the introduction of LMO-FFP (Living genetically modified organisms imported only for food, feed, or for processing.) and USDA's and industries' positions for article 8 in USDA's Draft for Environmental Impact Statement (DEIS). Dr. Piet van der Meer, who is a director of consulting company and also a guest professor of Ghent University, introduced us EU's situation on an environmental risk assessment together with brainstorming training on the environmental risk assessment.

We had 60 attendants from government, universities, and private companies etc. We believe that the work shop could give them a good opportunity to notify and to discuss the environmental risk assessment based upon sciences. We had good feedback from the attendants.

The 3rd International Tea Conference

The 3rd International Conference on O-CHA(Tea) Culture and Science (ICOS 2007) was held on November 1-4, 2007 at Shizuoka Prefecture University.

This conference has been held once a 3 years aiming to illuminate the tea culture and science to the world, which has been uniquely developing mainly in Japan and China. This was the 3rd times and around 2000 participants were there from 40 countries. In this conference ILSI Japan organized workshop symposium and following four lectures were addressed.

Symposium

ACTIVITIES OF ILSI JAPAN TEA COMMITTEE

Yukiko Nakanishi (*ILSI Japan, Japan*)

Dr. Yukiko Nakanishi, staff of ILSI Japan (Associate professor of Showa Women's University, Japan) presented the activities and organization of ILSI Japan and Tea Committee. She said "Tea has since the beginning been considered very beneficial for maintaining good health and curing various ailments, and tea has therefore been treasured as an important remedy in Asian countries, ILSI Tea Committee is working for the dissemination of accurate knowledge about tea consumption and the benefit to a good health based on the scientific researches. Also, we have been working on database of tea components since 2002."

INHIBITION OF PHYTOPATHOGENIC FUNGI ON SELECTED VEGETABLE CROPS BY TEA (CAMELLIA SINENSIS) EXTRACTS

Zenon Apostolides (*Univ. of Pretoria, South Africa*)

Dr. Zeno Apostolides, Professor of University of Pretoria, South Africa, presented the health benefits of tea extracts on vegetable crops, specially against phytopathogenic fungi in tomato and lettuce plants. Summary of his lecture is "Induction of

biochemical defence mechanisms was investigated as a possible mode of action in tomato and lettuce plants. The anti-fungal activity of Polyphenon G (PPG), caffeine, and combinations of Polyphenon G and caffeine were tested for *in vivo* activity against four phytopathogenic fungi including *Phytophthora capsici* and *Sclerotium rolfsii* on tomato and *Sclerotinia sclerotiorum* and *Pythium F-group* on lettuce. Commercial fungicides effective against each particular pathogen was included as stan-



dards. These results confirm that tomato and lettuce plants treated with PPG, caffeine and a combination of PPG and caffeine can induce compounds in plants similar to those induced by commercial plant activators. The results indicate that Polyphenon (i caffeine or combinations of these compounds have potential as alternative, environmentally friendly plant disease control agents on vegetable crops."

CURRENT RESEARCH ON TEA VARIETIES IN CAMELLIA SINENSIS

Miyuki Katoh (*Kagawa Univ., Japan*)

Dr. Miyuki Katoh, Professor of Kagawa University, Japan, reported as for the tea varieties in *Camellia Sinensis* by using the randomly amplified polymorphic DNA (RAPD) and amplified fragment length polymorphic (AFLP) markers. She reported on the genetic variations of the ribulose biphosphate carboxylase large-subunit (*rbcL*), and ribosomal RNA maturase (*matK*) in the cpDNA of tea (*Camellia sinensis*).

THE STUDY ON COMPONENTS OF TEA LEAVES

Yukihiko Hara (*Mitsui Norin Co., Ltd., Japan*)

Dr. Yukihiko Hara, Mitsui Norin Co. Ltd. reported the outcome of the ILSI Japan Tea Committee. For the purpose of enriching understanding of tea in an international context, Tea Committee were collecting the samples of tea leaves from representative tea growing area around the world and their chemical components have been analyzed with a standardized analytical method. Author believes that many people in the tea industry including those who manufacture ready-to-drink tea beverages will surely get benefits from the database as described. Background of this project is in that tea is favored not only for its flavor but in recent years for its beneficial health effects. In order to make the most of these attributes of tea, it is essentially important to study the chemical

compositions of the tea shoots from which the tea is made. It would appear the chemical studies of tea which have been conducted in production areas, have been primarily on their regional shoots and products. The fact that there has not been any chemical study of the tea shoots on a worldwide basis using the same analytical methods is almost inconceivable. One of the reasons for this may be attributed to the difficulty of establishing uniform systems for sampling and analysis in the respective tea growing areas. in addition to a lack of motivation to have such a worldwide database. However for the purpose of enriching our understanding of tea in an international context, the Tea Subcommittee and ILSI Japan is proposing a study using standardized analytical scales to analyze the components of tea shoots in representative tea growing areas around the world. We believe that many people in the tea industry, from those involved in agronomy to Ready-To-Drink tea manufactures and ultimately tea drinkers will benefit from this data base.

Series of

Japanese Food Culture

Traditional Japanese Foods and the Mystery of Fermentation
by TAKEO KOIZUMI Professor, Department of Agriculture of Brewing and
Fermentation, Tokyo University of Agriculture

< Summary >

Takeo Koizumi



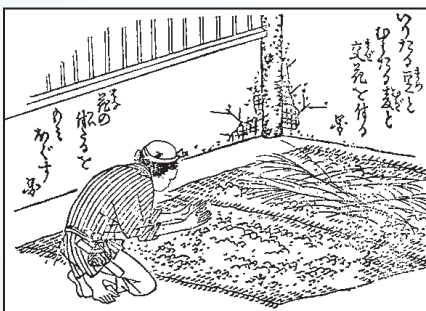
1943 : Born in the home
of Sake Brewing Industry
at Fukushima prefecture,
Japan

1966 : Graduation of
Tokyo University of
Agriculture

One of the characteristics of Japanese traditional food, is the fact that a variety of fermented foods are used. To list some of the common ones, there is, soy sauce, miso, vinegar, sake, mirin, tsukemono (pickles), natto, narezushi, katsuobushi, kusaya, etc. As you can see, the variety is plentiful and profound. In other words, many Japanese traditional foods have been manufactured as a result of applying the mystic living activities of fermentation. In light of this fact, this article will try to introduce several phenomena which are thought to be the origin of fermented food development, and will also try to express the subtle points of fermented foods. Concretely, the details are as follows. The article introduces "Kin-Jinja" which was built during the Nara era, and states that fermentation technology in Japan has been used from early times. Furthermore, It goes on to discuss about the successful discovery and cultivation of the "tane koji" (seed mold), which became the foundation for the development of fermentation technology in the years to come. In the last part of the article, it introduces the "Fugu Ransou-no-Nukazuke" (Pickled Globefish ovaries), an astonishing and unprecedented fermented food, which was invented by a Japanese. The most important topic raised in this article is "tane koji". The tane koji was invented during the late Heian era (794-1185) to the Muromachi era, however, considering the manufacturing process, this was an epoch-making incident. The technology is as follows. First, "koji kin" (koji-mold) is bred on steamed rice. By continuing this procedure long, the koji kin produces numerous spores. The next step is to separate the rice and the spores using silk sieves, collect only the spores and dry them for preservation. By strewn these spores on rice or on steamed soybeans, it became possible to gain large quantities of soybean mold and rice mold, safely and without restrictions. This process also led to the realization of mass production for sake (liquor), soy sauce and miso.

As a device to steadily and purely cultivate only koji kin spores. It is inevitable to use ashes (ashes of trees). These ashes prevent the koji kin spores from being tainted by other bacteria and it is recognized as an outstanding invention for the production of tane koji.

Ref : KIKKOMAN [FOOD CULTURE]



This illustration shows the production of soy sauce koji.

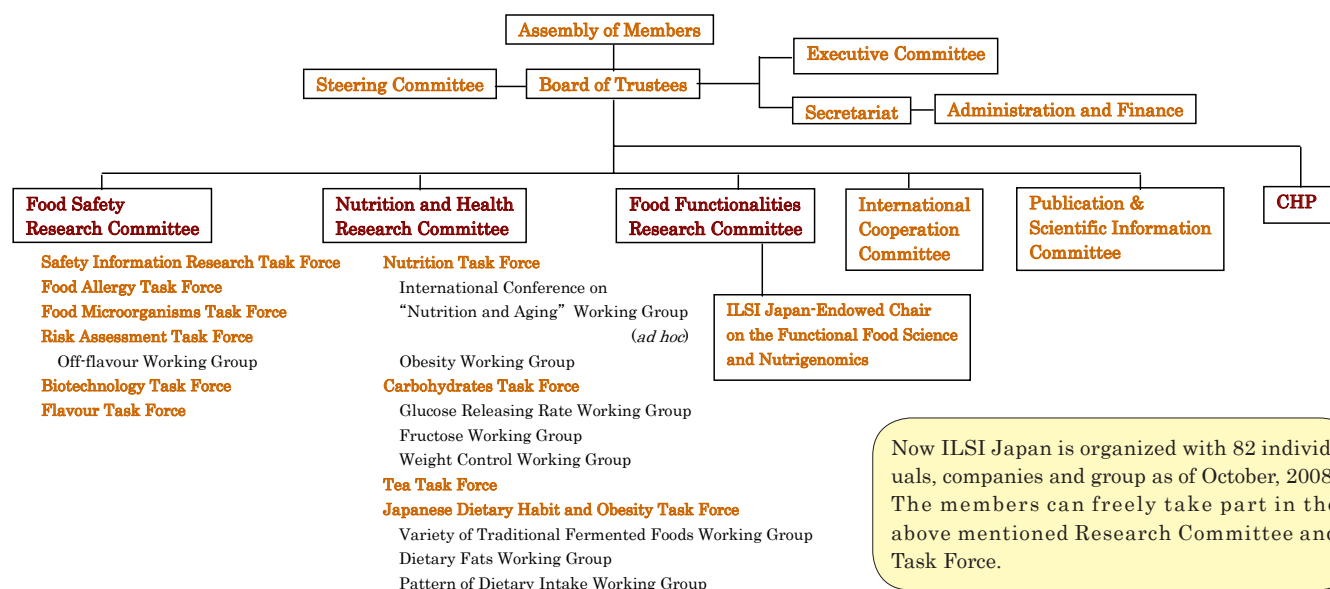
(From the "Koueki Kokusankou" an agricultural book in the Edo era (1603-1867))

The writings in illustration say, "An illustration which depicts how to mix roasted beans and steamed wheat", and "An illustration depicting the flower (tane koji) being strewn on the mixture".

What's ILSI Japan

Specified nonprofit corporation, International Life Sciences Institute Japan (ILSI Japan) was established in 1981 as a regional branch, and plays a role in worldwide activities of ILSI, and positively consults on the specific issues in Japan.

Organization

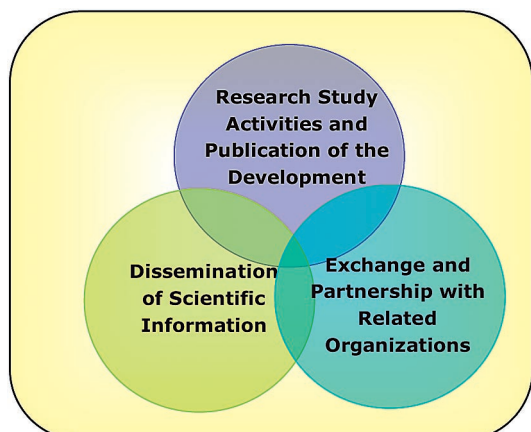


Now ILSI Japan is organized with 82 individuals, companies and group as of October, 2008. The members can freely take part in the above mentioned Research Committee and Task Force.

Activities

Research Study Activities and Publication of the Development

Members of ILSI Japan can participate in any task force where they will obtain the latest domestic and international



research trend and study common issues. The research themes are determined by members of the task forces. The latest domestic and international data are compiled and evaluated for the selected themes, and the results are made public. Some new research themes are commissioned to research organizations such as universities. Along with providing achievements of the task forces as the latest scientific information to the members, it advises related government agencies, academia and industries and contributes to enhancement of basics of political measures and research information, and new product development

Dissemination of Scientific Information

ILSI Japan publishes reports on the findings by the task forces and, in addition, a journal, *ILSI* (quarterly) and hosts very popular symposiums, lectures and a series of seminars. They are all aimed at dissemination of the latest and most accurate scientific information.

Exchange and Partnership with Related Domestic/Overseas Organizations

Many of the symposiums that ILSI Japan holds are co-hosted by related domestic or overseas organizations, thereby resulting in high-level relationships with foreign governments, international organizations and private corporations. It attends, as an observer, international conferences of the United Nations such as Codex for information exchange and opinion offering. As ILSI Japan is among the first recipients of up-to-date and comprehensive publications from the head office and other regional branches of ILSI, it always has access to the latest comprehensive global data on related matters.



Activities of CHP

ILSI Center for Health promotion in Japan was established as non-profit organization in July, 2001. The organization is dedicated to promotion of health through implementation of public health programs.

Vision

ILSI Japan CHP pursues public health programs on the basis of scientific research and investigations. The goal of ILSI Japan CHP is to assist in reducing morbidity and mortality and improving the quality of life of at-risk populations.

Projects

Project SWAN (Safe Water and Nutrition)

WHO reported that 1.1 billion people do not have access to safe drinking water. In many developing countries intake of unsafe water and unhygienic environment have caused diarrhea and infectious diseases among children. The situation has prevented intake of necessary nutrients resulting in malnutrition. Even if water treatment facilities are equipped, it is often observed that facilities are not properly designed and that proper treatment operation has not been conducted including chemical dosage to remove contaminants, resulting in failing in meeting WHO biological and chemical standards. Project SWAN aims to establish sustainable water supply and management models in rural areas through participatory approach with inhabitants by 1) enhancing knowledge of drinking water, nutrition and hygiene and sanitation at household level, 2) optimizing operation of water treatment facility and 3) establishing effective management systems which enable to sustain participatory approach on community basis.

Project IDEA (Iron Deficiency Elimination Action)

The difficulty in maintaining a variety of food sources results in malnutrition and micronutrients deficiency in the developing countries. Iron deficiency anemia, one of the most prevalent threats to public health, impairs brain development, immune system functioning, and learning ability in infants and children. It can also be a major cause of death among pregnant women, and dramatically

reduces productivity among working adults, which in turn hinders the struggle against poverty. The UN ACC/SCN (the United Nations Administrative Committee on Coordination/ Subcommittee on Nutrition) reports that 3.5 billion people are suffering from iron deficiency anemia, and they have been less successful in fighting it than in overcoming other micronutrient deficiencies.

Project IDEA works to reduce iron deficiency anemia (IDA) in developing countries by **adding iron to commonly-eaten and commercially-produced foods** such as condiments and staples, based on the dietary patterns of each country.

Project PAN (Physical Activity and Nutrition)

To promote healthier aging, Project PAN seeks to prevent **lifestyle-related diseases** including **obesity** among middle-aged people and **keep the elderly out of being bedridden**. Project PAN develops science-evidenced programs to promote physical exercise and to improve nutritional status of people through changing their lifestyles. ILSI Japan CHP is pursuing two programs named “TAKE10!®” and “LiSM10!®”.

LiSM10!®

ILSI Japan CHP developed “LiSM10!®”(Lifestyle Modification) that supports improvements of risk factors of lifestyle-related diseases of employees in **worksites**. This program focuses on health promotion for physical activity and dieting after medical check-ups in worksites. “LiSM10!®” is consists of 1) Individual objective setting and recording implementation. 2) Individual and periodical counseling by professionals to support individual program for 6 months, and 3) Support programs from worksites and families of individuals.

TAKE10!® for the elderly

Aiming to support “Healthier longevity” among the elderly and to reduce costs of the national health care program, ILSI Japan CHP developed TAKE10!® for the elderly. The program is featured by effective and unique combination of **appropriate physical activity** and **proper dieting habits**, which is different from conventional programs for preventing lifestyle-related diseases of adults.



Japanese Government Information

< GAP >

Last year the Japanese Ministry of Agriculture, Forestry and Fisheries began an initiative to explain and disseminate knowledge of GAP (Good Agricultural Practices) to all sectors and all levels of the agricultural industry. There have already been two meetings in which 1) the introduction of new techniques and 2) the joining together of producer associations and the Ministry to work in uni-

son on this issue were discussed. Case studies for future activities were also introduced. Food safety and reliability are public concerns that will only increase in importance in the future, therefore strategies for reducing and avoiding risk will continue to be discussed as urgent and high priority matters.



< Risk Communication >

In order to promote food risk communication the Food Safety Commission has set up the Food Risk Communication Promotion Committee. Professor Emeritus Hideaki Karaki of Tokyo Universi-

ty has been named chairman of this committee.



Editor's postscript

ILSI Japan was established in 1981 as a regional branch, and plays a role in worldwide activities of ILSI. Supposedly due to rather little communication as for the activities of ILSI Japan, ILSI Japan understands this to be a problem with ILSI members outside Japan. The publication of this English newsletter is meant to overcome any communication barriers and disseminate our activities and results to those outside Japan in an interesting and informative manner. (S.I.)



ILSI Japan Newsletter

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