

## Department of Urban System Science 2013 Annual Report

■ Staff List of the Department of Urban System Science, Graduate School of Urban Environmental Sciences

Shin AIBA, Associate Professor

Tanji HOSHI, Professor

Taro ICHIKO, Associate Professor

Fumiko ITOH, Professor

Satoru KATO, Professor

Motoi NAGANO, Associate Professor

Hiroyuki ONEYAMA, Professor

Kenji TAKEMIYA, Professor

Hidenori TAMAGAWA, Professor

Kahoruko YAMAMOTO, Associate Professor

Please refer to the site of Department of Civil & Environmental Engineering as for Prof. Oneyama.

## << Shin AIBA >>

### 1) Staff

Shin AIBA Associate Professor/Dr. Eng.  
Urban Planning, Machizukuri  
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### 2) Overview of Research Activities

#### 1. Study on reconstruction from disaster

Shin AIBA

I study on reconstruction plans and projects from Great East Japan earthquake. I support to plan reconstruction projects and actions in Ryori village, Ofunato city. Results are published on academic magazines and international conference.

#### 2. Urbanism on population decreasing age

Shin Aiba

I discuss and examine a theory of urban planning and design. Results are published on discussion papers of symposium by AIJ (architectural institute of Japan).

#### 3. City planning with existing architectural stocks

Shin Aiba

I develop city planning methods to utilize or demolish increasing abandoned houses in a city area. I practiced a rehabilitation project of abandoned house in suburban area of Tokyo, and planning project of a master plan of utilizing and demolishing abandoned houses in local city.

#### 4. Comparative study on machizukuri in east Asian countries

Shin Aiba

I compare policy, history and practice of machizukuri in Japan, Taiwan and Korea. I prepare a book to publish the results.

## 5. Technologies to support machizukuri

Shin AIBA

I develop technologies to support discussion and consensus building by citizens. I develop a system to support discussions of townscapes by citizens using smart phone devises.

### 3) List of Research Activities

#### 1. Refereed Papers

RikutaroManabe, Shin Aiba, and Fumiko Ito, "Keikan-Brain," a Device that Builds Knowledge and Consciousness about a Townscape, PROCEEDINGS OF CUPUM 2013,2013

Shin AIBA, Yuya SHIRAIISHI, Rikutaro MANABE et al: Citizen participation method to create community plan to utilize vacant houses, Journal of AIJ, No.44, pp.273-278, AIJ, 2013

#### 2. Proceedings of Oral Presentations

Shin AIBA, Hiroataka IKEDA, Shuhei KIMURA, Shosuke SATOH, "Reconstruction Machizukuri from the Great East Japan Earthquake in Ofunato's Ryori Village, Proceedings of the 9th Conference of the Pacific Rim Community Design Network the Rinari workshop, pp.17-20, The 9th International Conference of the Pacific Rim Community Design Network 2014

<< Tanji HOSHI >>

#### 1) Staff

Tanji HOSHI Professor/Dr. Med.

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#### 2) Overview of Research Activities

The purpose of our study is to make clear the yearly trend of the health status in urban city and determine which have the validity for the survival rate of the dwelling elderly in suburban city.

### 3) List of Research Activities

#### 1. Refereed Papers

1) The effects of socio-economic status and physical health on the long-term care needs of Japanese urban elderly: a chronological study. ; Vol.18,No.1,33-9,2013 Jan

Environmental health and preventive medicine: Yang Suwen, Hoshi Tanji, Nakayama Naoko, Wang Shuo, Kong Fanlei

2) Socioeconomic Status, Comorbidity, Activity Limitation, and Healthy Life

Expectancy in Older Men and Women: A 6-Year Follow-Up Study in Japan. Vol., No.2014 Jan 26; Journal of applied gerontology : the official journal of the Southern Gerontological Society; Yang Suwen, Hoshi Tanji, Wang Shuo, Nakayama Naoko, Kong Fanlei

3) The Effects of Family Dentists on Survival in the Urban Community-dwelling Elderly. American Journal of Medicine and Medical Sciences

2013;3(6),156-165, R. Tano, T. Hoshi, T. Takahashi, N. Sakurai, Y. Fujiwara, N. Nakayama

4) Causal relationships between survival rates, dietary and lifestyle habits, socioeconomic status and physical, mental and social health in elderly urban dwellers in Japan: A chronological study

Tanji Hoshi, Motoyuki Yuasa, Suwen Yang, Sugako Kurimori, Naoko Sakurai,

Yoshinori Fujiwara Health Vol.5, No.8, 1303-1312 (2013)

<http://dx.doi.org/10.4236/health.2013.58177>

#### 2. Proceedings of Oral Presentations

1) The structural analysis of survival days among Japanese urban elderly people(英語); 王 碩, 孔 凡磊, 中山 直子, 星 且二 : 日本公衆衛生学会総会抄録集(1347-8060)72 回 Page452(2013.10)

2) An analysis of the relation between social interaction and healthy life among the

community-dwelling elderly in Japan ; 王 碩, 楊 素, 孔 凡磊, 中山 直子, 艾 斌, 星 旦  
二 : 社会医学研究(0910-9919)30 卷 2 号 Page107-116(2013.06)

### 3. Monographs / Technical books

Tanji HOSHI editor, Public Health Igakushoin, 2013.

Tanji HOSHI editor, Public Health Administration, Japanese Nurse Association, 2013.

Tanji HOSHI editor, How to use the AMOS Life Publish Co., 2013.

## << Taro ICHIKO >>

### 1) Staff

Taro ICHIKO

Associate Professor/ Doctor of Urban Science

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### 2) Overview of Research Activities

#### 1. A study of run-away actions from the Tohoku region Pacific Tunami disaster

A run away action had made a significant role after the Tohoku region Pacific Tunami disaster. However cabinet office government of Japan surveyed those actions, it was not enough to inquiry reaction of designated person e.g. case workers and community leaders.

In this study, interview surveys were dedicated in Noda-village, Yamada-town and Ishinomaki-city.

#### 2. A study of a pre-disaster planning for post-disaster recovery

The building loss of the Tokyo capital earthquake directly above the focus was estimated five times bigger than the Hanshin-Awaji earthquake according to cabinet office government of Japan. It is inevitable to make and do mitigation strategy for not

only directly loss like death and injured but also indirectly loss like housing damage. In this study, I supposed to make planning technology for disaster-proof community development.

In fiscal year 2013, Community workshops for post-disaster recovery in Zoushigaya, Toshima-ward were planned and managed. Other hand, an action research on the 15<sup>th</sup> municipal staff training by TMG was implemented.

### 3. Development of learning programs for high school students to encourage disaster imagination and reaction capacity

After the Tohoku region Pacific Tunami disaster, there were a lot of students in Tokyo who could not go back to home until next day because of railways and bus service were stopped. It is necessary to prepare those immediate actions on a high school among a local government, a school office, a community and each family unit.

In this project, it is aimed that high school students could make adequate actions after a big natural disaster.

In this fiscal year, the 2<sup>nd</sup> workshop programs were developed for evacuation term and implemented in Nagayama high school, Tama-city were implemented.

## 3) List of Research Activities

### 1. Refereed Papers

Taro ICHIKO, Ryo SANUKI, Jin YOSHIKAWA and Itsuki NAKABAYASHI : Development of a Community Workshop Program for Post-disaster Life-continuity for Condominium Dwellers, Journal of Social Safety Science, No.21, pp.71-79, 2013 Nov

### 3. Others

#### 3.4 Invited speech

Taro ICHIKO ( 2013 ) What can planners do for post-disaster recovery? accompany-with approach as a context of Japanese planning realm, iscp2013, Special Session, <http://www.cpij.or.jp/com/iac/sympo/13/specialsession.html>

<< Fumiko ITOH >>

## 1) Staff

Fumiko ITO

Professor/ Dr. Eng.

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## 2) Overview of Research Activities in 2013

### 1. Environment of urban area and residential area

Fumiko Ito

The condition of the city, the evaluation of environment and the relationship between those are analyzed to get suggestion for creating comfortable residential environment.

This year, Following topics are researched.

- i) Sustainable environment of residential area: Eco housing in China and Japan,
- ii) Electric Vehicle: Purchase Preferences and Its Determinant Factors,
- iii) The Relation between Complexity and Impression of Street Network,
- iv) Relation between the change in sky factor and impression while walking.

### 2. Estimation of urban environment and urban projects

Fumiko Ito

Urban environment and the urban projects for building up the environment were estimated by economic benefit analysis. This year, Following topics are researched.

- i) Hedonic Price Analysis on the Environmental Value of Historical Courtyard Houses in Beijing
- ii) Change of attitude on continuous revitalization project: Art festival in Tohkamachi city

### 3. Structure of demand and supply in housing market

Fumiko Ito

The structure of demand and supply in housing market are analyzed by the data of

consumers' consciousness and data of the resale housing market. This research is funded by FRK and will be continued in 2014.

### 3) List of Research Activities in 2013

#### 1. Refereed papers

ITO Fumiko and FUJIKI Yoshifumi,(2013)

Analysis of the Relation between Complexity and Impression of Street Network [in Japanese]

Journal of the City Planning Institute of Japan (48), 327-332.

Manabe,R.,Aiba,S and Ito,F. (2013)

"Keikan-Brain,"a Device that Builds Knowledge and Consciousness about a Townscape.  
" CUPUM2013",CD-rom.

Tsuchiya,Y.,Ito,F.,Tagashira,N.,Baba,K and Ikeya,T.(2013)

"Analysis of Purchase Preferences for Electric Vehicles and Its Determinant Factors",  
20<sup>th</sup>ITS WORLD CONGRESS TOKYO.

#### 2. Proceedings of Oral Presentations

Nishio,S. and Ito,F. (2013)

Relation between the change in sky factor and impression while walking,  
Joint Meeting of Korean, Chinese and Japanese Scholars, Development and  
Corporation among the Mega-cities in East Asian Countries.

Ito,F. (2013)

Hednic Price Analysis on the Environmental Value of Historical Courtyard Houses in  
Beijing,

Joint Meeting of Korean, Chinese and Japanese Scholars, Development and  
Corporation among the Mega-cities in East Asian Countries.

FUJITANI Motoki , AIBA Shin , MANABE Rikutarou , ITO Fumiko(2013)

The proposal of the landscape element extraction technique using a citizen contribution  
type scene image database [in Japanese]

Summaries of technical papers of annual meeting 2013(City Planning), 231-232.

MANABE Rikutarou , INOUE Kinuko , AIBA Shin , ITO Fumiko , SANUKI Ryo(2013)

Study on the recognition of the city and patrol behavior of residents of disaster in the

densely built wooden : part 1, Disaster prevention patrol workshop method [in Japanese]

Summaries of technical papers of annual meeting 2013(City Planning), 319-320, 2013-08-30

INOUE Kinuko , MANABE Rikutarou , AIBA Shin , ITO Fumiko , SANUKI Ryo(2013)

Study on the recognition of the city and patrol behavior of residents of disaster in the densely built wooden : part 2, Recognition of the city seen from the results of disaster prevention patrol workshop [in Japanese]

Summaries of technical papers of annual meeting 2013(City Planning), 321-322.

TANABE Akane , ITO Fumiko , TSUCHIYA Yoriko(2013)

Change of attitude on continuous revitalization project : Art festival in Tohkamachi city [in Japanese]

Summaries of technical papers of annual meeting 2013(City Planning), 329-330.

KANAI Yusuke , ITO Fumiko(2013)

Attractiveness of overflowing goods from the small-scale retail stores : in KOENJI shopping district [in Japanese]

Summaries of technical papers of annual meeting 2013(City Planning), 755-756.

ITO Fumiko (2013)

The Lifestyle to live with historical house buildings : Hednic price analysis of housing price nearby courtyards in Beijing, China [in Japanese]

Summaries of technical papers of annual meeting 2013(Research Committee onArchitecture System and Management), 293-296.

### 3. Others

#### 3-2. Research Reports / Papers

Shoko Nishio and Fumiko ITO(2013)

Proposal for sky factor calculation system using panoramic image of Google street view [in Japanese]

Papers and proceedings of the Geographic Information Systems Association of Japan, vol22,6C-4.

<< Satoru KATO >>

## 1) Staff

Satoru Kato

Prof./ Dr. Eng.

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## 2) Overview of research activities

1. Infinite dilution partial molar excess entropy-enthalpy compensation for thiophene, carbon dioxide and water in ionic liquids

Satoru KATO

Infinite dilution partial molar excess entropy-enthalpy compensation for polar solutes in ionic liquids (IL) is investigated using the literature data of infinite dilution activity coefficient,  $\ln\gamma_1^\infty$ . It is shown that entropy-enthalpy compensation holds for the polar solutes, such as thiophene and CO<sub>2</sub>, and non-polar solutes, such as heptane and toluene. For the water + IL binaries, a converged linear relationship between infinite dilution partial molar excess entropy and enthalpy holds. Using the compensation rule, it is shown that, for the efficient removal of thiophene and CO<sub>2</sub> with IL solvents, ILs having weaker molecular interactions with thiophene and CO<sub>2</sub> are advantageous, because the entropy terms control the  $\ln\gamma_1^\infty$  values.

2. An empirical consistency test using thermodynamic consistency lines for the binary VLE data

Satoru KATO

An empirical consistency test is proposed for application to polar binaries. Using a significant number of the Margules binary parameters from the literature reported by different authors using different equipment, it was shown that polarity exclusion factor,  $\beta$ , converges to a straight line drawn on a log-log scale formulated as  $\beta = aP^b$  using the system pressure,  $P$ , of the constant-pressure data or the average vapor pressure of the

constant – temperature data. It was also shown that  $\beta$  is a polarity-independent variable. An application of the test to ternary LLE data is demonstrated

3. Vapor-phase mole fractions determined from the  $P, x$  data using the Margules equation for high-pressure binary VLE systems including carbon dioxide

Satoru KATO

High-pressure  $P, x$  data for CO<sub>2</sub>+hydrocarbons, +methanol, +ethanol and +water binaries were correlated using the Margules equation. The average relative difference between experimental data and the correlation was as low as 1 % at  $T < T_{c1}$ , where  $T$  and  $T_{c1}$  denote the system temperature and the critical temperature of the lighter component. It was found that the average relative difference of the vapor phase mole fractions from the Margules equation representing the  $P, x$  data is 0.6 % for the asymmetric and non-azeotropic binaries. A criterion for identifying the non-azeotropic binaries is proposed. The strength of molecular interactions and molecular order were identified for the azeotropic and zeotropic mixtures using partial molar excess enthalpies and entropies at infinite dilution. A method for the high-precision correlation of infinite dilution activity coefficients is proposed.

4. Influence of ionic liquids on enzymatic enantioselectivity

Hidetaka NORITOMI, Hideki CHIBA, Manabu KIKUTA, Satoru KATO

The enantioselectivity of  $\alpha$ -chymotrypsin in the esterification of *N*-acetyl-tryptophan with ethanol was examined in aprotic ionic liquids. The enantioselectivity was found to be strongly affected by a kind of solvent, water content, and reaction temperature. The  $(k_{cat}/K_M)_L / (k_{cat}/K_M)_D$  ratio in 1-ethyl-3-methylimidazolium bis(fluorosulfonyl)imide ([C<sub>2</sub>mim][FSI]) containing 1.0% (v/v) water at 25°C exhibits 32000, while that in 1-ethyl-3-methylimidazolium tetrafluoroborate ([C<sub>2</sub>mim][BF<sub>4</sub>]) containing 1.0% (v/v) water at 25°C shows 190. The  $(k_{cat}/K_M)_L / (k_{cat}/K_M)_D$  ratio in [C<sub>2</sub>mim][BF<sub>4</sub>] at 25°C varies from 190 at 1.0% (v/v) water to 65000 at 5.0% (v/v) water. Moreover, the  $(k_{cat}/K_M)_L / (k_{cat}/K_M)_D$  ratio in [C<sub>2</sub>mim][FSI] containing 5.0% (v/v) water can be forced to induce a 7-fold increase simply by switching from 25°C to 40°C. The enantioselectivity tended to correlate with enzyme reactivity in ionic liquids.

## 5. Adsorption of $\alpha$ -chymotrypsin on plant biomass charcoal

Hidetaka NORITOMI, Keito HISHINUMA, Shyunichi KURIHARA, Jumpei NISHIGAMI, Tetsuya TAKEMOTO, Nobuyuki ENDO, Satoru KATO

The adsorption of  $\alpha$ -chymotrypsin onto plant biomass charcoal (PBC), which was prepared from plant biomass wastes such as bagasses and dumped adzuki beans by pyrolysis, has been examined. The PBC was characterized by SEM, specific surface area, and pore size distribution. The adsorption isotherms were successfully correlated by the Freundlich equation. The amount of  $\alpha$ -chymotrypsin adsorbed on PBC was dramatically dependent upon the solution pH and temperature. Maximum adsorptions of  $\alpha$ -chymotrypsin on adzuki bean charcoal and bagasse charcoal were observed at weak acidic and near neutral pH, respectively. The amount of  $\alpha$ -chymotrypsin adsorbed on PBC decreased with an increase in the concentration of salts. Plots of the amount of  $\alpha$ -chymotrypsin adsorbed on PBC versus temperature exhibited an optimum temperature.

## 6. Formation and solubilization property of water-in-oil microemulsions of alkyl glucosides

Hidetaka NORITOMI, Yuki ISHIDA, Tomokadzu YAMADA, Hiroaki SAITO, Satoru KATO

The dependence of solubilization properties on the alkyl chain length of alkyl glucosides (AG) in AG/isooctane/n-butanol/water system was investigated. The stable Winsor II system consisting of a water-in-oil (w/o) microemulsion phase and an aqueous phase was formed in AG/ isooctane/n-butanol/water system. The apparent critical micelle concentration of AG reverse micelles in organic phases was markedly dependent upon the alkyl chain length of AG. The limiting amount of solubilized water increased with an increase in the alkyl chain length of AG. The solubilization capacity of methyl orange (MO) was superior to that of methylene blue (MB), and the solubilization capacities of MO and MB tended to increase with increasing the alkyl chain length of AG. Reverse micelles of dodecyl glucoside (AG12) exhibited the significant solubilization capacities of cytochrome c and lysozyme, while ribonuclease A was not solubilized by AG12 reverse micelles.

## 7. Application of reverse micelles of alkyl glucosides to synthesis of silver

nanoparticles

Hidetaka NORITOMI, Saori MIYAGAWA, Naohiro IGARI, Hiroaki SAITO, Satoru KATO

Silver nanoparticles were prepared in reverse micelles of alkyl glucosides by the injection method. The TEM image showed that the obtained silver nanoparticles displayed a wide variety of shapes. The size of silver nanoparticles was strongly dependent upon a kind of reducing agents, and tended to slightly increase with an increase in reaction temperature. The size of silver nanoparticles was hardly dependent upon the molar ratio of water to surfactant and the alkyl chain length of surfactants. Silver nanoparticles having various sizes and shapes were obtained at high concentration by the solid-liquid extraction method. The resultant silver colloid could be preserved for at least one month without precipitation.

#### 8. Efficient protein refolding using surfactants at high final protein concentration

Hidetaka NORITOMI, Yoshiyuki KATO, Satoru KATO

The refolding of denatured hen egg white lysozyme (HEWL) was examined by surfactants at a high final refolded HEWL concentration (1 mg/mL). Hexadecyltrimethylammonium bromide (CTAB) and sucrose fatty acid monoester (DK-SS) were used to dissolve denatured HEWL without denaturants such as guanidine hydrochloride (GuHCl) and urea. When denatured HEWL was perfectly dissolved in buffer solutions containing surfactants and dithiothreitol (DTT), the concentration of CTAB was about one-twentieth times less than that of DK-SS. The concentration of CTAB strongly affected the refolding yield, and the maximum refolding yield was obtained at 0.88 mM CTAB, which is around the critical micelle concentration of CTAB. The refolding yield was influenced by the molar ratio of oxidized glutathione (GSSG) to DTT, and the maximum refolding yield was obtained when [GSSG]/[DTT] was 1.5. The refolding yield was markedly dependent upon the solution pH of HEWL, and exhibited 80 % at pH 5.2.

#### 3) List of research activities

## 1. Refereed papers

Satoru KATO, Peter GOSTOMSKI, Akiyoshi ODA, Joerg FREITAG, Seiya HIROHAMA, David Bluck 2013 Prediction of mutual solubility and VLE using high precision correlation, *Fluid Phase Equilibria*, 357, 36-42.

Satoru KATO 2013 Vapor-liquid equilibria with the data, measurements, calculations and their prospects, *Kagaku Kogaku*, 474-477.

Hidetaka NORITOMI, Hideki CHIBA, Manabu KIKUTA, Satoru KATO 2013 How can aprotic ionic liquids affect enzymatic enantioselectivity?, *J. Biomedical Sci. Eng.*, 6, pp.954-959.

Hidetaka NORITOMI, Keito HISHINUMA, Shyunichi KURIHARA, Jumpei NISHIGAMI, Tetsuya TAKEMOTO, Nobuyuki ENDO, Satoru KATO 2013 Adsorption of  $\alpha$ -chymotrypsin on plant biomass charcoal, *J.Surf. Eng. Mater. Adv. Technol.*, 3(4), pp.269-274.

Hidetaka NORITOMI, Yuki ISHIDA, Tomokadzu YAMADA, Hiroaki SAITO, Satoru KATO 2013 Formation and solubilization property of water-in-oil microemulsions of alkyl glucosides, *Advances in Nanoparticles*, 2(4), pp.366-371.

Hidetaka NORITOMI, Saori MIYAGAWA, Naohiro IGARI, Hiroaki SAITO, Satoru KATO 2013 Application of reverse micelles of alkyl glucosides to synthesis of silver nanoparticles, *Advances in Nanoparticles*, 2(4), pp.344-349.

Hidetaka NORITOMI, Reona ISHIKAWA, Daiki IWAI, Nobuyuki ENDO, Satoru KATO 2013 Activity and stability of HEWL adsorbed onto plant biomass charcoal, , *Enzyme Engineering XXII*, Poster Number 69, Toyama.

Hidetaka NORITOMI, Yoshiyuki KATO, Satoru KATO 2014 Efficient protein refolding using surfactants at high final protein concentration, *J.Surf. Eng. Mater. Adv. Technol.*, 4(1), pp.9-13.

## 2. Proceedings of Oral Presentations

S. Kato 2013 Prediction of ternary LLE using thermodynamic consistency lines, *Proc. of Annual Meeting 2013 of SSPEJ*, SI-8.

S. Kato, H. Yagi 2013 Prediction of phase equilibria using thermodynamic consistency

lines, Proc. of Annual Meeting 2013 of SSPEJ, SI-P4.

S. Kato, H. Kuramochi 2013 Prediction of vapor-liquid equilibria for asymmetric binaries, Proc. of Annual Meeting 2013 of SSPEJ, SI-P5.

S. Kato 2013 Application of thermodynamic consistency lines to extractions, Proc. of Annual Meeting 2013 of SSPEJ, S5-1.

S. Kato, H. Yagi 2013 Prediction of phase equilibria using thermodynamic consistency lines, Proc. of Kita-Kyushu Meeting of JPE, P20.

M. Ichikawa, S. Kato, S. Kurita 2013 VLE measurements for CO<sub>2</sub> + methanol binary near the critical point, Proc. of Kita-Kyushu Meeting of JPE, P21.

S. Kato 2013 Prediction liquid-liquid partition coefficients using thermodynamic consistency lines, Proc. of 45<sup>th</sup> Autumnal Meeting of Soc. Chem. Eng., Japan, XG303.

S. Kato 2013 Accurate prediction of VLE using thermodynamic consistency lines, Proc. of 79<sup>th</sup> Annual Meeting of Soc. Chem. Eng., Japan, I124.

H. Noritomi, D. Iwai, K. Hishinuma, N. Endo, S. Kato May 2013 Structure of biomass charcoal and adsorption of proteins onto biomass charcoal, Proc. Of Annual Meeting 2013 of SSPEJ, S4-P1, Chiba.

J. Nishigami, H. Noritomi, N. Endo, S. Kato May 2013 Activity of  $\alpha$ -chymotrypsin adsorbed onto biomass charcoal in organic solvents, Proc. of Annual Meeting 2013 of SSPEJ, S4-P3, Chiba.

S. Kurihara, H. Noritomi, N. Endo, S. Kato May 2013 Activity of  $\alpha$ -chymotrypsin adsorbed onto biomass charcoal on aqueous solutions, Proc. of Annual Meeting 2013 of SSPEJ, S4-P2, Chiba.

H. Noritomi, R. Ishiyama, D. Iwai, N. Endo, S. Kato September 2013 Influence of the interface of plant biomass charcoal on the performance of hen egg white lysozyme, Proc. Of The 64<sup>th</sup> Divisional Meeting on Colloid and Surface Chemistry, P152, Nagoya.

S. Kurihara, H. Noritomi, N. Endo, S. Kato October 2013 Thermal stabilization of  $\alpha$ -chymotrypsin immobilized onto bamboo charcoal, Proc. of CSJ 3<sup>rd</sup> Chemistry Festa, P2-84, Tokyo.

J. Nishigami, H. Noritomi, N. Endo, S. Kato October 2013 Increase in activity of  $\alpha$ -chymotrypsin immobilized onto bamboo charcoal in nonaqueous media , Proc. of CSJ 3<sup>rd</sup> Chemistry Festa, P2-81, Tokyo.

<< Motoki NAGANO >>

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2) Overview of Research Activities in FY 2013

1. Study of policymaking in local governments and citizen participation in local assemblies

For this investigation of policymaking dynamics in Japanese local governments, I have focused on citizen participation in local assemblies. Using path analysis, my research examined national panel survey data on local-assembly reformation in municipal assemblies (excluding ordinance-designated cities) from FY 2009 to FY 2013. The research also considered legislators' voting histories and the presence or absence of deliberation between legislators in assemblies as variables to determine whether the presence of official dialogues between assemblies and citizens indirectly affected legislation or the amending of bills by house members in each assembly.

2. Study of the relevance of random sampling-type citizen participation methods for disputed policy issues in municipal governments

I have investigated the methods and relevance of using citizen participation samples, in which participants are selected randomly from the basic resident register (recently called "Mini-Publics"), for the handling of disputed policy issues in municipal governments. As part of my research, I analyzed questionnaire survey data (survey period: January to February 2013) on how program reviews (*jigyoushiwake*) are implemented in all the municipalities of Tokyo Metropolis, Saitama Prefecture and Kanagawa Prefecture, focusing in particular on how "Mini-Public" citizen participation methods are being used in the reviews. In addition, I conducted participatory observations and interviews of municipal officers, in whose municipalities I participated

in the reviews as a coordinator or as a member of an official management committee.

### 3) List of Research Activities in FY 2013

#### 2. Proceedings of Oral Presentations

Motoki Nagano, “Brief on the results of the annual progress survey on local-assembly reformation in Japan 2013”. 13th Exchange Conference Between Citizens and Legislators for Creating Local Ordinance 2013, July 2013, Ichigaya, Tokyo, Hosei University (in Japanese).

Motoki Nagano, “Project assessment by deliberative democracy-based participation in government: A case study of the Citizen Conference on the Second Municipal Implementation Plan for Shinjuku City, Tokyo”. 2nd International Conference, Development and Cooperation among the Mega-cities in East Asian Countries: Korea, China and Japan, September 2013, University of Seoul, Seoul, Korea

#### 3. Others

##### 3-1 Technical Books

[Co-author]

Katsuya Hirose and Local Assembly Reformation Forum, eds., White Paper of Local Assembly Reformation 2013, Seikatsusha Ltd., Tokyo, July 2013 (in Japanese).

[Contributions]

Motoki Nagano, “Analysis of local assembly fundamental ordinance articles: Reformation trends revealed in local assembly fundamental ordinances issued in 2013”. pp. 74-93.

Motoki Nagano, “Summary report of the annual progress survey on local assembly reformation in Japan 2013”. pp. 124-133.

Motoki Nagano, “The outcomes of local assemblies’ reformation and legislation by house members”. pp. 243-247.

##### 3-3. Monographs

Commentary/Critical Essay

Motoki Nagano, “What are the outcomes of citizen participation on municipal assemblies?” *Local Autonomy Daily (Jichinippo)*, September 2013 (in Japanese).

##### 3-4. Book review

Motoki Nagano, Book review: Masaru Nishio's *Reconsideration on Local Autonomy and Decentralization in Japan*, *Public Administration Review Quarterly* (143), pp. 43-46, September 2013 (in Japanese).

3-5 Lecture

Motoki Nagano, "Does the citizen deliberation meetings really contribute to municipal governments' decision-making?". 7th Citizen Deliberation Meeting Fair, Nippon-Seinenkan, Tokyo, March 2014 (in Japanese).

3-6. Awards

Encouragement Prize of Japan Association of Local Government Policy Studies 2013, November 2013.

<< **Kenji TAKEMIYA** >>

1) Staff

Kenji TAKEMIYA Professor / Dr. Eng.

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2) Overview of Research Activities in 2013

(1) Architectural Planning of Medical Emergency Center

This study aims at making clear the characteristics and architectural planning of medical emergency center. This year the spatial configuration and development status of the emergency center of the ER type was verified.

(2) Studies on the facility planning that corresponds to the progress of cancer care

This study is intended to show the planning requirements of the support environment for cancer patients and their families. This year, some remarkable results were got as follows:

1) A survey of the use of Cancer Counseling-Support Centers and cancer and salo

was conducted, and the comprehensive cancer consultation support environment was verified.

2) The characteristics of the usage of consultation support facility in out-of-hospital was examined.

3) The actual usage of the clinics that provides palliative care was verified.

(3) A study on architectural planning of neonatal intensive care ward

This study is intended to show the planning requirements of the support environment for patients and their family in the neonatal intensive care unit. The status of the neonatal intensive care ward in Japan was verified. A survey of the pioneering neonatal intensive care ward was conducted, and the knowledge of a new ward plan was derived.

(4) Residential Care System and Milieu for the Elderly and People with Disabilities

This study aims at improving the quality of living environment for the elderly and disabilities. This year, some remarkable results were got as follows:

1) The facility management and usage of small-scale facilities for the elderly to provide voluntary services business in the old folks' home 'A' was examined.

2) The management and planning of day service centers with severe motor disabilities was verified.

3) List of Research Activities in 2013

2. Proceedings of Oral Presentations

Kenji TAKEMIYA, UEKASAKA Noriyuki

Analysis of present state of home-based care and the respite care facilities for children with serious disease and disabilities, Study on architectural planning of the respite care facilities for children with severe motor and intellectual disabilities. PART.4, Summaries of Technical Papers of Annual Meeting E-1, AIJ, pp.563-564, 2013 (in Japanese)

UEKASAKA Noriyuki, TAKEMIYA Kenji

Analysis of present state of Day-Care and Short-Stay Service in the facilities for

children with severe motor and intellectual disabilities, Study on architectural planning of the respite care facilities for children with severe motor and intellectual disabilities. PART.3, Summaries of Technical Papers of Annual Meeting E-1, AIJ, pp.561-562, 2013 (in Japanese)

JEON Yong-Il, TAKEMIYA Kenji

Report on the existing conditions of cancer salon in Japan, Study on the planning of health care facilities for developed treatment for patients with cancer (7), Summaries of Technical Papers of Annual Meeting E-1, AIJ, pp.151-152, 2013 (in Japanese)

YOKOMORI Kei, SHIMAZU Erena, KOBAYASHI Kenichi and TAKEMIYA Kenji

Analysis of the Medical System and the Facilities Planning of Emergency Medical Centers at Medical Depopulated Areas, Research on Treatment Environment in Emergency Medical Center Part 8, Summaries of Technical Papers of Annual Meeting E-1, AIJ, pp.149-150, 2013 (in Japanese)

AOKI Sakurako, TAKEMIYA Kenji, ISHIBASHI Tatsuo, KOBAYASHI Kenichi

Study on treatment and care environment of neonatal intensive care ward, Summaries of Technical Papers of Annual Meeting E-1, AIJ, pp.199-200, 2013 (in Japanese)

ICHIKURA Kenta, TAKEMIYA Kenji

Reports of a participant observation study in the clinic 'HT', Study on the facility management and planning in the clinics to provide palliative care Part. 2, Summaries of Technical Papers of Annual Meeting E-1, AIJ, pp.215-216, 2013 (in Japanese)

ISHIKAWA Sakiko, TAKEMIYA Kenji

Study on management and facility planning of nurseries near the station, Case study of nurseries held by railway companies in Tokyo, Summaries of Technical Papers of Annual Meeting E-1, AIJ, pp.313-314, 2013 (in Japanese)

KITAHARA Hideaki, TAKEMIYA Kenji

Characteristics of utilization of the adjoining rooms in the old folks' home'A', Study on the small-scale facilities for the elderly which utilized the spatial structure of Japanese old folks houses, Summaries of Technical Papers of Annual Meeting E-1, AIJ, pp.537-538, 2013 (in Japanese)

KIM Sung-Ryong, TAKEMIYA Kenji

Analysis of the user records for 13 years in the old folk's home KS, Summaries of Technical Papers of Annual Meeting E-1, AIJ, pp.539-540, 2013 (in Japanese)

AYUMI Mineno, TAKEMIYA Kenji

Study on supportive environment for strolling by the visually handicapped person based on their behavioral characteristics, Summaries of Technical Papers of Annual Meeting E-1, AIJ, pp.817-818, 2013 (in Japanese)

Bui Thi Thu Ha, TAKEMIYA Kenji

Study on the facility management and planning in the international house, Summaries of Technical Papers of Annual Meeting E-1, AIJ, pp.409-410, 2013 (in Japanese)

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2) Overview of Research Activities in 2013FY

1. A Fundamental Study on the Characteristics of Urban Model and GIS application

Hidenori TAMAGAWA

To exchange the research information with foreign researchers, I made presentations about TMU, my department and my studies at University of Toronto, MIT, and ITC (The Faculty of Geo-Information Science and Earth Observation, University of Twente). Moreover I also observed the research activities of them, especially the project workshop at MIT. The experiences will be utilized for my further education and research.

2. A Study on Urban Theory

Hidenori TAMAGAWA and Hiroshi MIYAZAKI

Precise materials about Jane Jacobs were collected at the special corner “Jane Jacobs Papers” of Burns Library in Boston College. I also dedicated the DVD movie of my interview to Jane Jacobs in 1990 to the library. The DVD of my another interview to her in 1999 had already been stored. Moreover I conducted the interview to Mr. James

Jacobs who is a son of Jane Jacobs, watched the revitalization projects in Boston city, surveyed the statistics of Boston region at BRA (Boston Redevelopment Authority) and talked with Dean Melvin King of SETC (South End Technology Center) . Some parts of these results consist in a part of the reserach report issued by the Housing Research Foundation Jusoken.

### 3. A Study on the Recovery of the Damaged Area by the Earthquake Disaster

Hidenori TAMAGAWA, Shinji KAWAMURA, Taro ICHIKO and Yasuchi NOZAWA and Their Students

To make up the recovery planning for Noda village in Iwate prefecture which is the most north locality that is damaged by the Higashi-Nihon great earthquake, the field survey, work shop discussion and presentation are conducted. In 2013FY, charette workshop with real job experiences was conducted in August and public presentation to villagers was conducted in February, 2014. This activities are funded by Grants-in-Aid for Scientific Research by JSPS from 2012FY to 2014FY.

### 3) List of Research Activities in 2013FY

#### 1. Refereed Papers

Akiko Yamazaki, Hidenori Tamagawa and Itsuki Nakabayashi, “The Relation of the Narrow Street Arrangement Measures and the District Characteristic in a Community Rearrangement Work Area —Part2 A study on the direction of narrow street arrangement measures and the district characteristic in tokyo ward(ku) - area—”, Journal of architecture and planning, No. 694, pp.2547-56, 2013.12

#### 2. Proceedings of Oral Presentations

Masahiro Kameyama and Hidenori Tamagawa, “Land use simulation model and contiguity indices with its applications by three dimensional vector data”, Joint Meeting of Korean, Chinese and Japanese Scholars, Cooperative Development of Great Cities in North East Asia, 2013.09

#### 3. Others

##### 3-2. Research Reports/Papers

Hiroshi Miyazaki and Hidenori Tamagawa, “A Study on Planning Theories to Improve the Living Amenity of Common Japanese Urban Area –Revaluating Jane Jacobs Urban Theory and its Applying Feasibility to Japanese Cities”, Papers of the Studies Granted by the Housing Research Foundation Jusoken, No.40 – Study No.1207、 pp.71-82, 2014.03

#### 3-4. Works/Others

Hidenori Tamagawa, “Tokyo Metropolitan University and Department of Urban Science” and “Sustainable Cities - especially as for stability of population”, presentation at ITC (The Faculty of Geo-Information Science and Earth Observation, University of Twente) , 2013.11.25

Department of Urban System Science, edited by Hidenori Tamagawa, “Interdisciplinary Global Educational Exchange Program on Urban Issues in Asian Region”, Final Report of TMU Program for Enhancing the Quality of University Education (TMU-GP, 2012FY-2013FY), 2014.03

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#### 2) Overview of Research Activities

##### 1. Urban Sociological Study on Social Structural Changes and Reconstruction of Urban Inner Area

The Study has been focused on social structural changes in urban inner areas, taking a case of Kotobuki, Yokohama and Downtown Eastside, Vancouver, Canada, focusing on the issues below; 1) change in industrial structures with Globalization and

post-industrialization, 2) town development plan engaged by public administration and NPOs, 3) activities of local supportive organizations. The academic aim is to clarify 1) how these three points affect over changes and reconstructing of local communities, and 2) how social lives of residents have changed.

## 2. Research on Social Condition of the Evacuees from Fukushima

As a research group, we have conducted interviewing research to bring out the social condition of the evacuees from Fukushima, especially from Tomioka Town.

## 3. Research on Social Changes of Ex-Mining Town

The research has been conducted in Kushiro-City, Hokkaido Prefecture, focusing on social structural changes in the era of degradation of the local mining industry.

## 3) List of Research Activities

### 1. Refereed Papers

Kahoruko YAMAMOTO, 'Changes and the Restructuring of the Social Issues of the Urban Underclass Area with Increasing Needs of Welfare: A Case of Kotobuki, Yokohama, *The Annals of Japan Association for Urban Sociology*, 31: 95-110., 2013.

### 2. Proceedings of Oral Presentations

Kahoruko YAMAMOTO, Relations between Art Projects and Local Community in Urban Inner Area: A Case of Yokohama, The Annual Conference of Japan Association of Regional and Community Association, in Ritsumeikan University, Kyoto, May 11<sup>th</sup>, 2013.

Yusuke Yamashita, Akihiko Sato, Kahoruko Yamamoto and Ryosuke Takaki, 'Social Structure of the Evacuees from the Fukushima Nuclear Power Plant Accident (1)', The Annual Conference of Japan Association of Regional and Community Association, in Ritsumeikan University, Kyoto, May 11<sup>th</sup>, 2013.

Akihiko Sato, Yusuke Yamashita, Kahoruko Yamamoto and Ryosuke Takaki, 'Social Structure of the Evacuees from the Fukushima Nuclear Power Plant Accident (2)', The Annual Conference of Japan Association of Regional and Community Association, in

Ritsumeikan University, Kyoto, May 11<sup>th</sup>, 2013.

Kahoruko YAMAMOTO, 'Who is the Evacuees from the Fukushima Nuclear Power Plant Accident?', The Annual Conference of Kanto Sociological Society, in Hitotsubashi University, Tokyo, June 16<sup>th</sup>, 2013.

Kahoruko YAMAMOTO, 'The Social Structural Change and the Social Activity in the Urban Underclass Area in Vancouver, Canada', The Annual Conference of Japan Association for Urban Sociology, Kumamoto University, Kumamoto, September 16<sup>th</sup>, 2013.

Kahoruko YAMAMOTO, 'Social Inequality and Policy for the Evacuees from the Fukushima Nuclear Power Plant Accident', UOS-TMU Joint Seminar, University of Seoul, Seoul, September 27, 2013.

### 3. Others

Kahoruko YAMAMOTO, 'Gentrification Issues in North America: A Case of DTES, Vancouver', 10+1 website, July 2013, <http://10plus1.jp/monthly/2013/07/issue02.php>