# Nepal-Japan Collaborative Field Study in Nepal

Report

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## Background

*(Edited by **Akira Okada, Brenda Bushell, Hom Bahadur Rijal** and **Masayuki Goto**)*

The collaboration between Musashi Institute of Technology (now known as Tokyo City University - TCU) and National College, Center for Development Studies (NC) has initiated the Nepal Japan Project of students exchange program since 2006. The program was designed in 2005, and materialized in 2006, when both Japanese and Nepalese teams visited each other's country to conduct research. Under this project, 104 Japanese students have visited Nepal with 13 teachers, staff and other members of different institutions. Among the Japanese students, 15 have participated in two years and three in three years. Similarly, 25 Nepali students and three teachers have already visited Japan. The total number of participating students from Nepal is 35 **(Annex 1)**.

The Nepal-Japan Project is based two main concepts: i. mutual learning, and ii. student centered learning. Students and teachers can learn each other's environment and culture for sustainability through the project. Based on the concept of "student centered learning", most of the programs are designed, developed and managed by TCU student leaders with the strong support of the NC students every year. Students spend about four months to prepare the programs. From 2005 to 2007, the programs were focused in the Kathmandu Valley. From 2008 onwards, the programs have also been conducted in the Chitwan district.

In 2011, the field survey with six research components was conducted from the beginning of March. The water quality survey and sports collecting garbage activities were conducted in Kathmandu. The thermal comfort survey, discussion session, indicator survey and environmental education were conducted in Chitwan. Summaries of each research program are given below. These summaries are written by student leaders with some inputs by the respective teachers. Once the analysis of field data is completed, the research outcomes will be presented at various national and international conferences.

## 1. A Survey of Sustainable Community Indicators in Rural Nepal

*(By **Itaru Sugano, TCU,** and **Manita Shrestha, YNU**)*

The sustainable community indicators covering four areas namely Environment, Society, Economy and Education can be effective for use in monitoring progress towards sustainability in three rural communities in the Chitwan region of Nepal (See Questionnaires in **Annex 2** for details). It is now stated that the needs along with environmental and economic considerations should be integrated by developing sustainability indicators. The important issues in a local community are dependent on their situation, including history, culture, weather, geographical features and size of community. Through the survey for local people and the process of identifying the important indicators, the community can be characterized and well understood. If the set of important sustainable community indicators is clarified for a community, it will be useful for both local people and supporters as a guide to support their efforts in developing the sustainable community. Therefore, the purpose of this activity is to conduct a survey for local people to investigate the importance of indicators from their viewpoints as a first step to clarify the effectiveness of the sustainable community indicators in rural Nepal.

In the survey, the respondents were asked to indicate the extent of their agreement on each indicator using a Likert-type five point continuum based on the importance the indicator represented for their community's sustainability. The research team was constructed by the students from National College and Tokyo City University. They used the survey sheet to ask local people in Nepali which was translated into English by the NC students so that TCU students could understand **(Picture 1 left, and 2 right)**.

**Pictures 1 & 2 NC and TCU Students Conducting Field Survey in Chitwan**

The activity of sustainable indicator survey was done for the second time in March 2011, based on the data collected by the similar survey in March 2010, the results of analysis were presented and published (Lama et al, 2010, and Bushell et al, 2011).

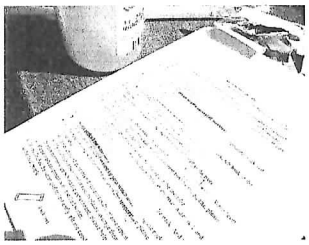
1-5 Student Leaders, Tokyo City University (TCU)
6 Lecturer, Tokyo City University
7 Lecturer, Tokyo City University
8 Student Leaders, Yokohama National University (YNU)
9 Associate Professor, Waseeda University
10 Professor, University of the Sacred Heart

## 2. Water Quality Survey of the River in Kathmandu Area

*(By **Masashi Kobatake, TCU**)*

The purpose of this activity is to learn the environment problems in Kathmandu. The main causes of the river water pollution are garbage and sewage, and the reason may be due to the expanding population both in Kathmandu municipality and the surrounding areas in the Valley. However, the rivers are refreshed by rain water during the monsoon season and it makes the issue invisible. That is, this problem can be solved easily compared to other environment issues. However this problem should be regarded as a more serious issue by the people in Nepal, because the water quality and surrounding riverside environment is becoming degraded in Nepal, as in other developing countries. This is a reason why the study team focuses on the problem of rivers **(Picture 3).**

**Picture 3 Water Quality Survey Team below the Kopundol-Thapathali Bridge over the Bagmati river, Kathmandu valley**



**Picture 4 Chemical Pack Test of River Water**

The study team planned to conduct water quality survey at four spots (Chobhar, Kalimati, Thapathali and Budhanilkantha) along the rivers in Kathmandu city. Water quality was measured by conducting various pack tests **(Picture 4)**. In the pack test, $NO_2$, $NO_3$, COD, $PO_4$ and $NH_4$ can be measured. Moreover, the survey was also conducted on local people. The main purpose of this survey was to clarify the feeling and opinion of the local people about the river pollution. Through the survey, the study team could clarify the water quality. Moreover, the team members found that most residents living along the riverside were dissatisfied with the river. They can understand that the water is not clean. But they don't understand how the polluted water could cause diseases.

## 3. Activity of "Sport Collecting Garbage"

*(By **Mai Sasaki, TCU**)*

In Nepal, the waste problem is very serious and a lot of garbage can be seen on the road. There is a common custom that some citizens litter in public areas. Considering this situation in Nepal, the team members thought that it was necessary for citizens to change their ideas about how to manage their garbage. In the field program on March 3, 2011, the team members conducted the waste collection activity **(Picture 5)**. The Sport Collecting Garbage which is well known in Japan, was introduced to approach the solution of the waste problem.

The "Sport Collecting Garbage" was established in Japan in 2008. Japanese people thought that if they could make a sport/game for waste collection, people could enjoy as a sport helping to improve the environment. Originally, the waste collection has a negative image (unpleasant, dirty, bad smell, etc.), but people may have a positive feeling through the "Sport Collecting Garbage". The first prize is for the group which collects the most garbage by weight.

In this activity, more than 50 citizens participated. The participants were divided into seven groups for an inter group competition. To help collect garbage, cotton work gloves, garbage bags, and brooms were distributed to the entrants. The total time allocated was 45 minutes for this sport. There were referees in each group and there were various rules so that the activity could be carried out safely and effectively **(Picture 5 and 6)**.

**Pictures 5 & 6 Participants Collecting Garbage and Commendation Ceremony in Basantpur, Kathmandu**

Many participants ran although running was strongly prohibited and this scene was a dramatic surprise. The citizens enthusiastically participated more than we predicted. As a result, it was impossible to measure the weight of the collected garbage in a fair way because the rules were not followed in some groups. It was also impossible to decide the order of groups and the winners. With consultation among referees, all participants became the winners. Although the team was not able to conduct the activity as planned, the activity could give many citizens a good opportunity to consider the waste problem and acquire a high awareness about the need to manage their waste.

## 4. Thermal Comfort of Traditional Houses of the Country Residents in Chitwan

*(By **Itaru Sugano, TCU**)*

The survey team conducted measurements of thermal environment and subjective thermal survey targeted at residents living in traditional houses in the Chitwan area, and to clarify the temperature, which is most comfortable for residents **(Pictures 7and 8)**.

**Pictures 7 & 8 NC and TCU Students Conducting Thermal Comfort Survey in Bachhauli, Chitwan**

We also consider the regional differences and seasonal differences by comparing with previous studies. If we can understand comfortable temperature, the thermal comfort of the local people living in Chitwan by the present research, the impact of energy consumption can be altered through improved housing construction. In order to achieve our purpose, we measured the air temperature, relative humidity and illuminance around the houses, and asked the residents how they feel/prefer at that time. It took about 1-minute per person to complete the questionnaire. We surveyed eachfamily member. This research approach can be conducted to the same person many times to increase the sample size, if the time interval is more than one hour.

Through this survey, we were able to collect 483 samples in our two-day schedule. The residents' feelings about comfort temperature differed for each person. The analysis to estimate comfort temperature can be done using the regression method and Griffiths' method.

## 5. Formulation of Networks and Future Visions for Collaborative Development in Chitwan Area through Members' Discussion

*(By **Yushiro Suzuki, TCU**)*

The Nepal Japan Project has investigated community management and sustainable development for Chitwan area over the past three years. However, we haven't shown these survey results to the local people in the Chitwan community. Therefore, we made a short presentation to get feedback of the survey results. The local people from various organizations and local groups were invited to this activity. After the presentations, we conducted a "participatory discussion" about the problems in the Chitwan area. The participatory discussion is one of commonly used research methods to exchange various opinions from different organizations or local groups. Through the discussion among the participants, they can make a network with other community members. Through this background, we had planned this activity.

The aims of the activity include: (1) Feedback of our survey results to the local people; (2) Clarification of the local people's problems in the Chitwan area through the discussion; (3) Networking among different communities, organizations, and local groups (stakeholders); (4) Understanding by participants about the other community's activity; (5) Discussion between participants about future visions of their ideal community, and (6) Understanding of participants on the importance of 'participation type discussion' (discussion between different stakeholders).'

The main structure of this activity was Feedback and Discussion. First, we made a presentation about the survey of last year. After that, participants including TCU and NC students were divided into four groups. The procedure of group discussion was as follows:

Step 1: Brainstorming - What problems are there in the Chitwan area?
Step 2: The relation (cause and effect) between the above problems.
Step 3: Finding out collaboration among stakeholders- What kind of activities and how can collaboration take place with other organizations or local groups?
Step 4: Choosing two groups and brainstorming – What improvements can be realized in the Chitwan area.
Step 5: Discussion on future visions of the ideal community in the Chitwan area.

We employed KJ method to construct the structure of local issues **(Box 1)**. The pre/post questionnaires were conducted to investigate the change of participants' consciousness, awareness, and knowledge.

**Box 1 K-J Method**

The **K-J Method** developed by ethnologist Jiro Kawakita in the 1960s, has become one of the Seven Management and Planning Tools used in Quality Control in Japan. Similar to the Snowball Technique, it uses values of Buddhism intended as structured meditation.

Source: http://www.mycoted.com/KJ-Method

Through this activity, all participants could take part actively in the discussion in a positive way and they could understand the importance of 'participatory discussion' to share their ideas and overcome the local issues. We could conclude that this activity was successful **(Pictures 9 and 10)**.

**Pictures 9 & 10 Group Discussion and Analysis of Local Issues**

## 6. To Design and Assess an Environmental Education Program for Structural Study of Environmental Problems

*(By **Yuko Ushiki, TCU**)*

This was the second year of our school activity in Sauraha, Chitwan. The activity in this year focused on the relation between environmental problems and their lifestyle. This activity aims to design and assess field activities based environmental education programs, which motivate school students to obtain a structural concept of environmental problems and to act to solve the problems. In this school activity, girls and boys were separated into six groups.

The steps of the school activity were as follows: First, we had self-introduction among the group members. After the introduction, a candy was given to each student and we captured their actions on video camera which could help to identify the way how they disposed the candy cover. Next, the students were asked to fill out the pre questionnaire.

Following this step, we guided the school students to think about environmental problems using as many key words as they could think of, which they wrote on chart paper. They then categorized these key words into different groups, e.g., agriculture, tourism, energy, health, etc. The TCU and NC students motivated school children to think about the links between problem categories and the effects on their livelihood aspects. They went through the key words and added to the check list (if necessary) and then considered the link between the candy cover and the environment. Then, we conducted various interviews including the hotel owners, people living in the neighborhood of the school and also the shop owners. Once again, they went through the pre study group work. Some new key words could be added if the school children gathered new information from the field activity, by using different colored pens. After the field interview, the school children discussed about the structural relation (relation loop), findings from interviews and garbage collection activities. Through the discussion, the conclusions were written on the chart paper. Presentations by the children using the chart paper were successfully made about their conclusions. At the end of this school program, we asked the students to fill out the post questionnaire **(Pictures 11 and 12)**.

**Pictures 11 & 12 Brain Storming and Discussion on Local Issues and Presentation by Students of Chitrasari Madhyamik Vidyalaya of Chitwan**

Through this activity, the school students tried to think what they could do and what is necessary for their community. Through the questionnaire, the children's awareness was changed. We could conclude that the school teachers should consider the effective education for teaching environmental issues.

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## Annex 1
## List of Participating Students, Faculty and Staff

### A. Nepalese Students who had visited Japan

2010
1. Mr Dikshanta Uprety
2. Mr Mandeep Basnet
3. Mr Samrat R Adhikary
4. Ms Anu Aryal
5. Ms Manjushree Lama

2009
6. Mr Diwakar KC
7. Mr Ritendra Thapa Magar
8. Ms Richa Bhattarai
9. Ms Shruti Pandey
10. Ms Sumnima Dewan

2008
11. Mr Sanjeev Poudel
12. Ms Aastha Bajracharya
13. Ms Genius GC
14. Ms Sneha Bhattarai

2007
15. Mr Nabraj Lama
16. Mr Pradyumna SJB Rana
17. Ms Bijaya Koirala
18. Ms Darshan Karki
19. Ms Sampada Satyal
20. Ms Shristi Khadka

2006
21. Mr Ashik KC
22. Mr Bikash Gajurel
23. Ms Aastha Ranabhat
24. Ms Jasmine Shakya
25. Ms Krishma Sharma

### B. Nepalese Students Participating in the Nepal Program

26. Ms Sindhu Chand
27. Mr Maheswor Giri
28. Mr Sailesh Adhikari
29. Mr Saunak Bhatta
30. Ms Anudeep Dewan
31. Mr Sumit Poudyal
32. Ms Sami Munikar
33. Mr Udip Regmi
34. Ms Anju Baral
35. Mr Sagun Raj Lama

### C. Japanese Students who had visited Nepal

2011
1. Itaru Sugano
2. Koji Ainota
3. Koshiro Sakamoto
4. Kosumo Udagawa
5. Mai Sasaki
6. Masahiro Endo
7. Masashi Kobatake
8. Shotaro Takeuchi
9. Shunji Ohkawa
10. Yukiho Harada
11. Yuko Ushiki
12. Yushiroh Suzuki
13. Yuuki Ueno

2010
14. Aya Mikami
15. Aya Taguchi
16. Daisuke Okabe
17. Itaru Sugano
18. Junya Tanaka
19. Kazuya Okuda
20. Ko Maruyama
21. Koji Ainota
22. Mai Sasaki
23. Manita Shrestha
24. Mari Naitoh
25. Marina Yano
26. Masashi Kobatake
27. Momoko Ozawa
28. Nozomi Imai
29. Ryoko Iwamura
30. Ryutaro Watanabe
31. Satomi Yagihashi
32. Satsuki Kubo
33. Takenori Suzuki
34. Takuro Kumagai
35. Wataru Sato
36. Yuka Takahashi
37. Yuko Ushiki
38. Yushiroh Suzuki
39. Yusuke Ohnuki

2009
40. Akika Ozawa
41. Akito Asaki
42. Aya Mikami
43. Fumiya Sotome
44. Hikaru Akahori
45. Hiroyuki Samukawa
46. Hitoshi Kurata
47. Keiko Shimizu
48. Kenichi Tachibana
49. Kohei Sakane
50. Koji Ainota
51. Manami Shiihashi
52. Manita Shrestha
53. Minori Kitano
54. Nozomi Imai
55. Ryoko Iwamura
56. Satomi Yagihashi
57. Shoichi Takahashi
58. Shunsuke Tada
59. Tatsuya Fukuoka
60. Yoshiteru Takinoiri
61. Yuta Abe
62. Yuu Isozaki

2008
63. Chihiro Saito
64. Katsuya Yamadera
65. Keiko Shimizu
66. Manami Shiihashi
67. Manita Shrestha
68. Natsuki Konno
69. Ryutaro Horiuchi
70. Saori Nagayama
71. Shoichi Takahashi
72. Yu Uchida
73. Yuki Seto
74. Yuri Yamazaki
75. Yuta Abe

2007
76. Chiyo Sugimura
77. Hiromi Kondoh
78. Katsuya Yamadera
79. Katsuyuki Kikuchi
80. Keiko Shimizu
81. Keita Ishizu
82. Ryosuke Yamada
83. Shingo Hikota
84. Sho Yoshida
85. Shoko Hashimoto
86. Tadashi Ochi
87. Yasuharu Takita
88. Yuki Seto

2006
89. Aimi Owashi
90. Akifumi Maruyama
91. Goto Masayuki
92. Katsuhiro Aizawa
93. Kenta Mikawa
94. Kohei Suzuki
95. Koyama Songi
96. Kurata Hitoshi
97. Maiko Mori
98. Masayuki Ichikawa
99. Ryutaro Horiuchi
100. Shingo Koizumi
101. Tomoyasu Kubo
102. Toshio Kono
103. Yagyu Syuuji
104. Yumi Kurushima

### D. List of Faculty and staff

Japan

Name Designation and Organization
1. Mr Baba Saan, TCU
2. Mr Hitoshi Kurata, Photographer, TCU
3. Mr Hitoshi Takahasi, TCU
4. Mr Shinichi Goto, TCU
5. Mr Kenichi Tachibana, EVF
6. Mr Ozawa, Photographer, TCU
7. Mr Daisuke Okabe, TCU
8. Ms Ito Sanei, Tokyo University
9. Prof Brenda Bushell, USH
10. Prof Hom Bahadur Rijal, TCU
11. Prof Masayuki Goto, Waseeda University
12. Prof Okada Akira. TCU
13. Prof Shuji Yagyu, TCU

National College
1. Mr Madhav P Neupane, Principal
2. Mr Ujjwal Upadhyay, Assistant Program Coordinator
3. Mr Gopal Bhatta, Research and Development Officer (2003-2006)

# Annex 2 - Questionnaires

Pre/Post Questionnaire for Children in School Program (March 5, 2011)

**Chitwan School:** Chitrasari Madhyamik Secondary Vidyalaya School Grade 8 Students

The purpose of this questionnaire is to gather your opinions and awareness about life in Saruaha community where you live.

**Your Personal Information**

Name: _____

Age: _____ Sex: Female [ ] Male [ ]

Caste: _____

Living with family members: Alone [ ] Parents [ ] Brothers [ ] Sisters [ ] Grandparents [ ] Others:_____

**Part A. Your Opinions**

Read each of the statements below and circle the number that you agree with most.

**Environment** (in Sauraha)

| I think | Disagree | Somewhat Disagree | Don't Know | Somewhat Agree | Agree |
|---|---|---|---|---|---|
| 1.the environment (river, roadside, forest, etc.) is well managed by the local people | 1 | 2 | 3 | 4 | 5 |
| 2.the environment (roadsides, river, open spaces) are clean | 1 | 2 | 3 | 4 | 5 |
| 3.I know how to managing wastes | 1 | 2 | 3 | 4 | 5 |
| 4.people in the community know how to manage their waste | 1 | 2 | 3 | 4 | 5 |
| 5.if we keep our environment beautiful we can make money(ex..sightseeing trade) | 1 | 2 | 3 | 4 | 5 |

**Society** (in Sauraha)

| I think | Disagree | Somewhat Disagree | Don't Know | Somewhat Agree | Agree |
|---|---|---|---|---|---|
| 1. it is important to have a good relationship with everyone in the community | 1 | 2 | 3 | 4 | 5 |
| 2. if people work together, life in the community can be improved | 1 | 2 | 3 | 4 | 5 |
| 3. everyone has equal opportunities in the community (education, work, etc.) | 1 | 2 | 3 | 4 | 5 |
| 4. there are enough services in the community (shops, health centers, schools, libraries, etc.) | 1 | 2 | 3 | 4 | 5 |

**Economy** (in Sauraha)

| I think | Disagree | Somewhat Disagree | Don't Know | Somewhat Agree | Agree |
|---|---|---|---|---|---|
| 1.it is important to have locally owned businesses in the community (ex. hotels, shops, tourism business) | 1 | 2 | 3 | 4 | 5 |
| 2. I would like to own a business in Sauraha some day | 1 | 2 | 3 | 4 | 5 |
| 3. my family is wealthy | 1 | 2 | 3 | 4 | 5 |
| 4. my community is wealthy | | | | | |
| 5.my community tries to make contact with foreigners | 1 | 2 | 3 | 4 | 5 |

**Education** (in Sauraha)

| I think | Disagree | Somewhat Disagree | Don't Know | Somewhat Agree | Agree |
|---|---|---|---|---|---|
| 1.getting a good education is important for all members of the community | 1 | 2 | 3 | 4 | 5 |
| 2. there are good communication systems to help people learn in the community(radio, community events, information announcements, etc.) | 1 | 2 | 3 | 4 | 5 |
| 3.higher education is necessary for people in this community | 1 | 2 | 3 | 4 | 5 |
| 4. environment education is necessary for people in this community | 1 | 2 | 3 | 4 | 5 |
| 5. my environment education at school is good enough | 1 | 2 | 3 | 4 | 5 |
| 6.I want to take action to teach others in my community | 1 | 2 | 3 | 4 | 5 |

**Part B. Your Comments**

1. Write 3 or 4 keywords to describe the Sauraha community where you live: i_____

ii._____ iii. _____ iv. _____

2. What is a sustainable society/community? Write your idea _____

3. Do you think the Sauraha community is sustainable? Why or why not?

_____

**Post Question only?** What idea do you have to make the Sauraha community more sustainable?

_____

**Post Question - only:** What have you learned from today's research and presentation activity?

_____

Thank you for answering this questionnaire!