Environmental Education (EE) as an Entering Point for Realising a Sustainable Cities through City-to-City Cooperation

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Institute for Global Environmental Strategies (IGES)

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Experience of Kitakyushu City

50 years ago

At Present

The Sky Over the Kitakyushu City

Dokai Bay

Murasakigawa

Source: Kitakyushu City, 2016
Experience of Kitakyushu City

Realization of the sustainable city of Kitakyushu
Eco-future city

Environment Hands-on Learning

Environmental Education in each curriculum

Foster children environment leaders

Projects of board of education, etc.

Environment Caravan

Environmental Education at School

Source: Kitakyushu City, 2015
Some Examples of EE Activities in Kitakyushu City

Source: Kitakyushu City, 2016
A Green Note Book (Midori Note) of Kitakyushu City

Workbooks for elementary school children “Green Notebook”

Source: Kitakyushu City, 2016
Lessons for Developing EE Programme

Aims of Environmental Learning
Environmental learning is a process that allows individuals to explore environmental issues, engage in problem solving, and take action to improve the environment.

Key categories of Environmental Learning

- **Awareness and sensitivity** to the environment and environmental challenges
- **Knowledge and understanding** of the environment and environmental challenges
- **Attitudes** of concern for the environment and motivation to improve or maintain environmental quality
- **Skills to identify and help resolve environmental challenges**
- **Participation in activities** that lead to the resolution of environmental challenges

Development of Environmental Learning Materials
(Development of curriculum materials, active learning programmes, and capacity building activities)

Source: Premakumara et. al., 2016
Building Partnership between Kitakyushu City and Mandalay City
A Support System of Developing EE in Mandalay

2012-2014
Staff of Mandalay joined a training in Kitakyushu City under the JICA project
Staff of Kitakyushu City visited Mandalay twice to study the environmental issues under the CLAIR project
The Mayor of Mandalay visited Kitakyushu under the JICA project to study

2015-2016
Study the current status of Environmental Education (EE)
Develop an Ecology Note based on Kitakyushu City’s experience
Organize a training workshop for teachers in 3 model schools to pilot the use of Ecological Note for EE

2016-2017
Expand the application of Ecological Note from 3 model schools to 18 model schools
Organize a training workshop for teachers in 18 model schools to get new knowledge and skills on how to use Ecological Note
Organize a training workshop for citizens and city officials in a model community regarding how to use participatory tools for raising awareness on waste separation at source
Sample survey of environmental knowledge and awareness of students

2017 and beyond
Institutionalize EE to expand the use of Ecological Note in all schools
Institutionalize waste separation and 3R activities in the waste management strategy of Mandalay City (part of CCET project) to be applied in all communities
Sample survey of environmental knowledge and awareness of students
A Need Assessment in Mandalay: Prioritising EE Activities

Challenging Factors in Achieving 3R Society in Mandalay City (%)

- Lack of cooperation among different stakeholders: 28%
- Lack of awareness and civic engagement: 38%
- Lack of incentives and enforcement systems: 5%
- Lack of technology and innovations: 13%
- Lack of visibility: 9%
- Lack of power: 7%

Priority Actions for Establishing 3R Society in Mandalay City (%)

- Development of environmental education programme: 43%
- Encourage private sector participation: 26%
- Identify new technologies and innovations: 15%
- Establish new policies and regulations: 11%
- Building partnership and cooperation among key stakeholders: 5%
A Review of Existing EE programmes in Mandalay City

<table>
<thead>
<tr>
<th>Agency</th>
<th>Target Areas Activities/materials</th>
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</table>
| (1) Department of Basic Education (Ministry of Education) | • Development of curriculum and teacher training (Primary – Grade 8, All schools)  
• Life Skill classes for grade 1-3 (main curriculum) and over grade 3 (co-curriculum)  
• School greening day (Jul), School health day (Aug), School cleaning day (Oct), Hand washing day (Oct) |
| (2) Model Schools (BEHS 4, 14 and 26) | • Conduct Life Skill classes based on the curriculum  
• Some practical activities such as composting, reuse of water pots, waste separation, handcraft, Plantation, biological lifecycle, and laboratory production |
| (3) MCDC | • Waste management lectures for students  
• Media coverage (newspaper article, radio programme and flyers) |
| (4) Environmental Conservation Department (MONREC) | • School lectures (one school per week) for grade 7 – 10 (minimum 40 schools per year)  
• Media coverage (flyers, cartoons, guide books)  
• Organisation of events, such as Environmental conservation day (Jun 5), World ozone day (Sep 18), Annual competition (essay, cartoon, art). |
Environmental Learning Materials: Guiding Principles

- **Fairness and Accuracy:** EE materials should be fair and accurate in describing environmental problems, issues, and conditions, and in reflecting the diversity of perspectives on them.

- **Depth:** EE materials should foster awareness of the natural and build environment, an understanding of environmental concepts, conditions, and issues, and an awareness of the feelings, values, attitudes, and perceptions at the heart of environmental issues, as appropriate for different developmental levels.

- **Emphasis on skills building:** EE materials should build lifelong skills that enable learners to prevent and address environmental issues.

- **Action orientation:** EE materials should promote civic responsibility, encouraging learners to use their knowledge, personal skills, and assessments of environmental issues as a basis for environmental problem solving and action.

- **Instructional soundness:** EE materials should rely on instructional techniques that create an effective learning environment.

- **Usability:** EE materials should be well designed and easy to use.
Development of Environmental Learning Materials
Ecology Note in Mandalay City based on Midori Note of Kitakyushu City

Ecology Note
Towards a Clean and Green
Mandalay City

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In cooperation with:

City of Kitakyushu, Environment Bureau
Board of Education

Mandalay City Development Committee
Department of Basic Education, Ministry of Education

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When we throw away our garbage, it usually collects by MCD and ends up in landfill. Every time we throw something away we throw with it the energy, the money, the raw materials, and the water it took to make. Get student to think what will happened to our environment if we all keep continuing throw away. This types of society we called as Throw-Away-Society (Mottai Nai Society in Japanese).
Let's start to waste separation at home with your family members.

Aim

We generate a great deal of waste daily. The waste that is generated at households can broadly divided into (i) other waste (plastic, metal, glass, paper, cloth, etc), (ii) food waste, (iii) yard waste, and (iv) hazardous waste.

Waste segregation is the process of separating waste into different types to make it easier to recycle, compost, or dispose of. There are three main types of waste segregation:

1. Blue Bag (plastic, paper, glass):
   - Use blue bag for plastic, paper, and glass.
   - Collect plastic, paper, and glass separately.
   - Recycle the collected materials.

2. Green Bag (food):
   - Use green bag for food waste.
   - Collect food waste separately.
   - Compost the collected materials.

3. Black Bag (other waste):
   - Use black bag for other waste.
   - Collect other waste separately.
   - Dispose of the collected materials in the landfill.

By separating waste, we can reduce the amount of waste that goes to landfill, save resources, and reduce pollution.
Aim

Healthy soil makes for healthy plants and vegetables. Students can learn how they can grow a healthy plants using things that throw away. They can also learn the difference between the chemical fertiliser and composting.
Apply in Model Schools: Model School 1 (BEHS 4)
Apply in Model Schools:
Model School 2 (BEHS 14)
Apply in Model Schools:
Model School 3 (BEHS16)
Making a Green Map by the students of BEHS16
Skype meeting between the students of Kitakyushu and Mandalay (2015 Nov 19)
Helped to get more political and public attention to address environmental issues.
Expand the Partnership to Address Environmental Issues – Waste Management

JUNE 1, 2016

DRAFT

QUICK STUDY ON WASTE MANAGEMENT IN MYANMAR
CURRENT SITUATION AND KEY CHALLENGES

City Waste Management Strategy and Action Plan for Mandalay
(Draft)
August 2016

UNEP
MOHFWC
IGES

Institute for Global Environmental Strategies
Strategy Development Process in Mandalay

(1) Preliminary meeting and consultation with key stakeholders

29 Feb 2016 (Meeting with MONREC), 29 Feb 2016 (Meeting with Nay Pyi Taw City Development Committee)
2 Mar 2016 (Site visit in Mandalay City Development Committee)
4 Mar 2016 (Meeting with Yangon City Development Committee)

(2) Carried out the quick study and identify the key gaps (Mar – May 2016)

(3) 1st National (13 – 15 June 2016) and City (16-17 June 2016) workshops for drafting a national and city waste management strategy and action plan

A total 100 participants including both government, business, civil society, academic and non-governmental organizations were participated in Mandalay Workshop.
Key Challenges

(1) Waste Generation and Composition
- Rapid increase in volume of waste generation
- Increase and emergence of a variety of wastes need a proper treatment
- Shortage of landfill space and difficulties in finding suitable lands within city limits
- Increase in waste management cost
- Lack of basic data and information

(2) Policies, Regulations and Institutional Arrangements
- Lack of policy at both national and local levels
- Weak enforcement of existing laws and regulations
- Lack of policy to promote 3R
- Lack of planning
- Lack of know-how and capacity at national and local levels
- Lack of coordination within and among different administrative layers

(3) Public Participation (Education, Promotion of 3Rs through awareness campaign & awareness raising)
- Lack of policies to promote 3Rs
- Lack of awareness to promote 3Rs
- Lack of awareness on health risks of the informal sector
- Lack of participation and coordination among stakeholders e.g. inter-agency collaboration at national/local level

(4) Economic Aspects
- Revenue in the collection of waste is very low, so that it cannot cope with the total waste management expenditures
- Penalties are not strictly enforced
- Lack of measures for Public and Private Partnership

(5) Technological Aspects
- Limited know-how and capacity on suitable technologies adopted to the local condition
- Limited resources including finance and expertise to invest for new technologies
- Limited research and practical application on new technologies
This City Waste Management Strategy has identified the following major goals and each of these goals is then briefly discussed with some key targets and objectives.

- **Goal A** – Maximise municipal solid waste collection and recycling in the city
- **Goal B** – Improve final treatment and disposal system in the city
- **Goal C** – Maximise proper collection and disposal of industrial and hazardous waste
- **Goal D** – Maximise proper disposal and treatment of waste water
- **Goal E** – Capacity Development, Awareness Raising and Advocacy
- **Goal F** – Ensure services remain sustainable through review, monitoring, innovation and improvement
International experience for technology development

Primary collection

Secondary collection
International experience for technology development

Collection points

Final disposal and treatment
International experience for technology development

Waste separation and recycling
Extension of Project Activities to Rayong and Map Ta Phut Cities, Thailand
Capacity building for improving the MSWM to mitigate SLCPs

**Project Partners**

**Project Implementation Process**

2. **Development of action plans** (2015/2016)
3. **Development of work plans and pilot implementation**
4. **Monitoring, documentation, and expansion to other communities and cities**

**Current Project Status**

- Needs future support from CCAC
“Srinakharinwirot University Prasanmit Demonstration School (Elementary) visited Kitakyushu on January 17, 2016

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<tr>
<th>Date</th>
<th>Activities</th>
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<tr>
<td>Jan. 17(Sun.)</td>
<td>Suvarnabhumi International Airport to Fukuoka Airport</td>
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<td>Jan. 18(Mon.)</td>
<td>Kitakyushu Eco Town, Next Generation Energy Park, Hibiki Biotope</td>
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<td>Jan. 19(Tue.)</td>
<td>Waste to Energy Facility, TOTO Museum, Environment Museum</td>
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<td>Jan. 20(Wed.)</td>
<td>Co-activities with Sone-Higashi Elementary School ①</td>
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<td>Jan. 20(Wed.)</td>
<td>Co-activities with Sone-Higashi Elementary School ②</td>
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<td>Jan. 22(Fri.)</td>
<td>Nissan Motors Co., Ltd, Kyushu Electric Power Co., Inc, Co-activities with Takami Elementary School</td>
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<td>Jan. 25(Mon.)</td>
<td>Yasukawa Electric Coperation, Honjyo Can&amp;Bottle Recycling Center, Courtesy Call to SG of Environment Bureau, City of Kitakyushu</td>
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<td>Jan. 26(Tue.)</td>
<td>Fukuoka Airport to Suvarnabhumi International Airport</td>
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**Activities:**
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- Fukuoka Airport to Suvarnabhumi International Airport
Expansion of Project Activities to Indonesia:
Improvement of Water Environment through Establishment of EE system in Deli River basin in North Sumatra Province
(JICA, 2016-2019)

Source: Kitakyushu University, 2016
Introduce Project Based Learning (PBL) Method

水環境健全性指標
（環境省監修、日本水環境学会作成）

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Source: Kitakyushu University, 2016
Introduce Project Based Learning (PBL) Method

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Introduce Project Based Learning (PBL) Method
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Source: Kitakyushu University, 2016
Ideas for consideration

• EE is an entry point for establishing sustainable cities in Asia through city-to-city cooperation
• Theoretical knowledge needs to be incorporated with practical actions and life skill programmes
• School activities needs to expand to community activities to address wider environmental issues (water pollution, waste management, 3R etc)
• Capacity building and teachers training are required
Thank you

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