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**SMART CITIES
FOR SUSTAINABLE
DEVELOPMENT**

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Environmental Education and Learning Materials for a Smart and Green Mandalay City

❖ Mandalay City has been facing considerable challenges in addressing environmental issues. Through a city-to-city cooperation, the Institute for Global Environmental Strategies collaborated with Kitakyushu City to develop a comprehensive environmental education program to increase Mandalay citizens' environmental stewardship.



Mandalay, the last royal capital of Myanmar, aims to promote itself as a smart and green city.



Rapid urban growth, industrialization and lifestyles changes have led to significant challenges in managing solid waste and other basic services.
Photo: by author, 2016

The City of Mandalay, Myanmar's last royal capital and its second largest city with 1.25 million people, has experienced rapid urbanization and population growth in the recent past.¹ To promote itself as a smart green city, the Mandalay City Development Committee (MCDC) and the Department of Human Settlement and Housing Development (DHSHD) prepared their first major 25 year urban development plan.²

The Asian Development Bank (ADB) and the French Agency for Development (AFD) are providing technical and financial support to help the city achieve its vision through the Mandalay Urban Services Improvement Project, which aims to improve the city's water supply system, wastewater treatment and solid waste management.³ In addition, the International Environmental Technology Centre (IETC) of the United Nations Environment Programme (UNEP) has also been providing technical assistance for developing a waste management strategy to help the city achieve a zero waste, zero emissions and resource-efficient society.⁴

All these programs recognize that smart planning, basic urban infrastructure investment, and a radical transition towards a more sustainable lifestyle are requisite steps necessary for ensuring that Mandalay becomes a smart and green city.



Mandalay City Development Committee (MCDC) is responsible for local administration, planning and implementation of urban services.
Photo: by author, 2015



Key stakeholders are actively involved in brainstorming and identifying gaps in the existing environmental education (EE) programs.
Photo: by author, 2014



Model schools (some teachers from Basic Education High School - BEHS - No.4) are involved in designing the new environmental learning materials.
Photo: by author, 2015

IGES AND KITAKYUSHU CITY INTERVENTION

Against this background, the Institute for Global Environmental Strategies (IGES) has been collaborating with Kitakyushu City since 2014, sharing the city's experience with MCDC to help develop a new environmental education (EE) program for junior schools in Mandalay City.

Kitakyushu City, one of the leading environmentally sustainable cities in Japan, has had a remarkable journey, transforming itself from a “Grey (polluted) City” to a “Green City”, through an environmental education program that raised citizens' awareness about sustainable development. Kitakyushu City gave particular attention to youth education and built partnerships among different urban stakeholders to overcome environmental pollution in the 1960s.⁵

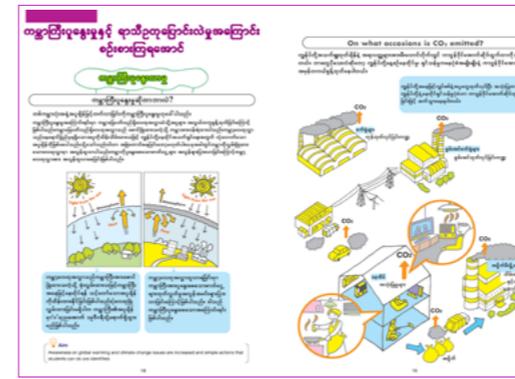
Meanwhile, IGES has applied a Participatory Action Research (PAR) method, which includes a series of consultations and focus group workshops with local key stakeholders, to develop Mandalay City's new EE program and learning materials.

The project started with an understanding of the existing situation. The initial survey results acknowledged that the existing EE programs (both formal and non-formal) implemented by MCDC and other groups in the city merely focused on raising awareness on environmental issues.

Through a random survey conducted at one of Mandalay's environmental model schools, IGES found that instruction focused mainly on ecology and that students typically receive only incidental exposure to environmental issues.⁶ About 90% of the students answered that they were well aware of the environmental impacts of bad waste management practices and that they were responsible for protecting the environment. However, none of them knew what happens to waste after collection, and only 17% of them were involved in some kind of waste separation or reduction activities at home or school.

ECOLOGY NOTE

As a result, based on Kitakyushu City's EE experience, IGES developed Ecology Note, a new environmental learning program, and is implementing it in three model schools in Mandalay.⁷ Ecology Note offers a new, more innovative approach, combining the three learning domains—knowledge, skills and attitudes (KSA)⁸—to encourage students active contributors to solving environmental issues, rather than just being passive listeners.



Some contents related to Waste Management/ 3Rs (Reduce, Reuse and Recycling) and Climate Change in the Ecology Note.
Source: Ecology Note, IGES, 2016



Teacher training on the new environmental education learning materials.
Photo: by author, 2016

Ecology Note includes contents related to:
(i) *Awareness and Sensitivity*: to provide sufficient knowledge for developing a conceptual awareness of how individual and collective actions may influence the relationship between quality of life and the environment;
(ii) *Investigation and Evaluation*: to provide sufficient skills to investigate environmental issues and evaluate alternative ways to solve problems; and
(iii) *Action Skills*: to develop the skills to take positive actions to achieve environmental improvements.

By fostering sustainable lifestyles, *Ecology Note*—the new learning program—can help Mandalay City achieve its goal of transforming into a smart and green city. Through mainstreaming EE in formal and non-formal education, and mobilizing and empowering youth to pursue sustainable lifestyles, Mandalay City can establish a new norm that saves energy, uses resources efficiently, and minimizes environmental impacts.

The project builds the capacity of teachers, other individuals and organizations to incorporate the proposed principles into concrete learning and actions based on cultural values and traditional social practices. However, it is vitally important to develop a sustainable system for introducing this learning material into the current education system. Additionally, the networks among related organizations must be expanded and partnership to facilitate mutual learning and resource sharing must be created.

MCDC, the Department of Basic Education, Ministry of Education in the Mandalay Region and other key stakeholders, including local non-governmental organizations are implementing the new EE program in 18 model schools in 2016 and will gradually bring it to all 250 schools in the city. To help integrate the learning materials into the school curriculum and support the teachers and other organizations that will implement them, the IGES staff together with experienced teachers from Kitakyushu City conducted a series of trainer training workshops.

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Endnote:

- 1 Mandalay City Development Committee (2015): Solid Waste Management in Mandalay City, a presentation made at the 4th Green Economy Green Growth (GEGG) Forum in Mandalay 5 February 2015, MCDC.
- 2 MCDC (2014): Mandalay: An overview, http://www.fukuoka.unhabitat.org/kcap/activities/egm/2014/pdf/egm13_en.pdf. Accessed by 24 August 2016
- 3 MCDC, AFD and ADB (2015): Mandalay Urban Services Development Project: Towards a Green Mandalay, ADB, Myanmar
- 4 IETC, MCDC and IGES (2016): Draft City Waste Management Strategy for Mandalay, MCDC, Myanmar
- 5 City of Kitakyushu (2010): Kitakyushu City: Eco Tour Guide Book, Environment Policy Department, Environment Bureau, Kitakyushu
- 6 A random survey carried out by the IGES selecting 41 students from the grade 5 classes at the BEHS No.4 school in August 2016
- 7 Premakumara, D.G.J, Kataoka, Y, and Chowdhury, M (2016): Development of Environmental Learning Programme for Establishing a Sustainable Solid Waste Management System in Mandalay City, Myanmar, a paper presented at the HDCA 2016 Conference: Capability and Diversity in a Global Society, 1-3 September 2016, Hitotsubashi University, Tokyo. For more information about the content of the Ecology Note, please refer to <http://pub.iges.or.jp/modules/envirolib/view.php?docid=6227>
- 8 Bonwell, C.; Eison, J. (1991). Active Learning: Creating Excitement in the Classroom AEHE-ERIC Higher Education Report No. 1. Washington, D.C



Learning about 3R and climate change in the classroom.
Photo: by author, 2016

Single Window Transaction - Modified Business One-Stop Shop (SWiT-MBOSS)

■ The City Government of Muntinlupa rolled out an initiative to implement more efficient governance by creating one-stop-shop access for the delivery of public services, which has been modified and simplified over time. SWiT-MBOSS provides simpler, quicker public service delivery and has resulted in a better, more business-friendly environment.

The Single Window Transaction-Modified Business One-Stop Shop or SWiT-MBOSS is a simplified system implemented by the Business Permits and Licensing Office (BPLO) for processing new business permit applications and renewals. SWiT-MBOSS consists of just three simple steps, all of which are done during the taxpayer's interface with a single BPLO staff, from the start to the end of the transaction.

The MBOSS is by far the most streamlined version of the Business One-Stop Shop (BOSS), which Muntinlupa City Government adapted in the late 1990's. From the earlier scheme, which featured fourteen steps, the system was simplified into twelve steps, before eventually it was reduced by half to just six steps. This shortened the processing time by a substantial margin. Hence, Muntinlupa City was named the Most Business-Friendly City by the Philippine Chamber of Commerce and Industry (PCCI) for two consecutive years (2001 and 2002). It also earned a special citation from the same body in 2006. Consequently, this initiative was replicated by other local government units (LGUs) in the Philippines.

Still, in its sustained pursuit of continual improvement in the quality of service it provides to the public, BPLO re-engineered the system in August 2013 into the Modified Business One-Stop Shop or MBOSS, and this time it further simplified the procedure into just three steps. With this intervention, the permit application process became even shorter, averaging thirty minutes from start to finish.

Raising the bar a notch, MBOSS was redesigned in February 2015 to feature the innovative Single Window Transaction or SWiT. The previous process

involved interactions between a taxpayer/customer and at least three personnel, while SWiT enables the taxpayer/customer to interact with only one personnel who manages the examination of application documents, the assessment and issuance of payment order, payment acceptance, issuance of receipt, and the release of the approved permit. The total processing time is proportionately shortened since the transition from one staff to another has been eliminated. With SWiT-MBOSS, complete processing time averages thirty minutes (for applications that meet all requirements), though there are many instances when transactions are completed in a fraction of that interval, as shown in transaction slips filed by each frontliner at the end of each working day.

The processing time commences once a frontliner accepts the application form together with all required documents from a taxpayer, which include completed and notarized application forms (two copies) and photocopies of barangay permit for business, Securities and Exchange Commission (SEC) or Department of Trade and Industry (DTI) registration, community tax certificate, contract of lease (if renting the place of business) or tax declaration (if business space is owned), and other necessary attachments depending on the nature of the enterprise. Then, the necessary data and other information are encoded by the frontliner into the system, which then generates the assessment to be paid. The same staff receives the taxpayer's payment, issues the receipt, and finally releases the approved permit.

SWiT-MBOSS is important to both the management and staff of the BPLO because it facilitates the accomplishment of: (1) the office's mandate to ease