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Penang River Educational Programme: A Case Study of University Students' Involvement in Community River and Water Management

Lai Chee Hui*, Chan Ngai Weng and Phang Wai Leng

School of Humanities, Universiti Sains Malaysia, Malaysia

Abstract

A university's role has evolved from solely academic to being more socially responsible which can benefit local communities. University students are expected to be more sensitive towards community issues and contribute to community welfare via community engagement programmes. In Universiti Sains Malaysia (USM), a group of students are carrying out outreach programmes to increase awareness and educate the local communities in river conservation. This paper discusses the role of USM students in a project on Penang River and Water Educational Programme. It highlights the contributions made by the USM students in creating awareness and educating the public towards conserving rivers and water resources, and the impact from this university-community engagement.

***Keywords**: sustainable partnership, community river management, community water management, student involvement, community engagement*

Introduction

In the light of global warming, river and water issues have increased in intensity throughout the world. Educating a community on river and water conservation has become increasingly important. The local community has been identified as the key element to ensure global water sustainability. However, they need to be trained and educated to utilise their skills and knowledge to be part of the solution for the future challenges (Cockerill, 2010). Historically, a university or higher educational institute plays a role solely in the field of academia. In recent years, many universities have urged their academic staff and students to engage with the local community and form a mutually beneficial partnership that produces and applies knowledge (Olowu, 2012). University students should not focus solely on academic activities. They are encouraged to reach across the campus boundaries by participating in a variety of community engagement programmes (Bernardo, Butcher, & Howard, 2012). Community engagement by the university offers many benefits but it also presents significant challenges. In fact, many academic staff and students from the university do not view community engagement as a

* **Corresponding author.** Email: chlai87@yahoo.com

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priority in their work. The university always faces challenges such as workload issue, lack of networks, student and staff resistance, turnover of students, the possibility that students do not engage, and unsustainable partnership (Bednarz et al., 2008). The university-community engagement would not benefit either side if academic staff and students would not change their traditional view that such an engagement is secondary to teaching, study and research. In USM, a group of students has shown good practice in community engagement by participating in a river and water education programme. The Penang River and Water Educational Programme (PRWEP) is a programme that aims to increase public awareness in water conservation. This programme provides an opportunity for the students to be involved as volunteers to educate the community in river conservation. This paper discusses how USM students engage with the community through the PRWEP. Our paper is guided by the following research questions:

- What are the contributions of the PRWEP to the local community?
- What is the role of USM students in the PRWEP?
- How sustainable is this student-community partnership in this programme?

Methods and Study Materials

This paper is written based on both primary and secondary data. Primary data were obtained by doing qualitative interviews via in-depth interviews with key informants. A total of 50 key informants were interviewed. The key informants were university students who are involved in the programme, participants of the programme, and the organisers of the community programme. Field observations were carried out to collect on-site information. One of the authors also acted as a participant observer in one of the PRWEPs to get a deeper understanding of the programme. Photography was also used as a method of data documentation/collection. Secondary data were obtained from published reports, newspaper reports, and academic journals. Most of the secondary data were collected from the organiser's (Water Watch Penang) website. The authors also requested photos and reports from the organiser as the secondary data of this paper.

Results and Discussion

Penang River and Water Educational Programme (PRWEP)

The PRWEP is organised by an environmental NGO from Penang, Water Watch Penang (WWP). The programme started in 2001 and is funded by a private water company called *Perbadanan Bekalan Air Pulau Pinang* (PBAPP). The objectives of this programme are as follows: (i) To create awareness in the community on the importance of river and water conservation towards sustainable water resources; (ii) To enhance knowledge required to protect river and water catchment environment; (iii) To equip the community with essential skills for river water quality monitoring; and (iv) To involve participants in river clean up (Chan, 2006b). The majority of the participants of this programme are from the younger generation within the local community. They are usually school children from primary and secondary schools aged between 11 to 16 years old in Penang State. The programme is usually conducted once a month with a group comprising 30 to 40 students and two to four teachers. The programme is run by two to three trained facilitators who are USM students. In the programme, the participants are taught about the importance of river and water conservation by the facilitators (Figure 1). The activity then continues with the river monitoring fieldwork where participants learn simple monitoring to classify the river water quality. The assessment techniques include observation of the river environment (inspection on physical characteristics

and aquatic life) and measurements of river characteristics (river's depth, width, cross-section and flow rate). Simple water quality measurements using measuring equipment are also taught by the facilitators. The equipment most often used by the facilitators is the pH meter to test acidity, the dissolved oxygen (DO) meter to measure the level of dissolved oxygen in the water, and turbidity meter to measure the water's turbidity. The programme ends with the river clean-up where students are assigned into a few groups to collect the garbage along the river.

Figure 1: Facilitators (USM students) briefing the participants about the importance of river conservation.

As Penang state has been identified as a "water-stressed" state in Malaysia, it is vitally important to engage the communities in ensuring water resource sustainability (Chan, 2006a). Thus, the expected outcomes of this programme are heightened awareness and knowledge on the importance of river and water conservation and also commitment of participants to be "water-savers" in the community. School children are expected to gain the knowledge on how to identify the river water quality through simple field work methods. The river clean up activity teaches school children to be always responsible not to pollute but to protect nature. The outcomes could contribute to better river water quality and provide better living environment for aquatic life. Furthermore, it teaches the young generation to protect Penang's water resources to ensure the state's water sustainability in the future.

The Role of USM Students in PRWEP

The learning of river and water conservation for school children involved many processes. The PRWEP needs at least two to three facilitators to conduct the activities. A key strategy of this programme is the engagement of USM students to be the programme facilitators. Community engagement facilitators play a vital role to drive the outcome of the programme. The outcome of the community engagement programme often depends on the impact towards the participants. Thus, the facilitator should be able to manage the information and motivate the target community to be engaged for the programme (Coetzee, 2012). In the PRWEP, USM plays a role as the "provider" of facilitators. Most of the facilitators of this programme are USM students (both undergraduate and postgraduate) from School of Humanities, School of Industrial Technology and School of Biological Sciences in USM. In most cases, they are responsible for teaching participants about river water quality monitoring methods. To conduct the river quality monitoring field work, it requires facilitators with knowledge of biology, chemistry, hydrology and water characteristics. Thus, the university is an ideal place to train the facilitators for running this programme. First, university students need to be trained by WWP to be certified water educators before they can educate the school children. In fact, most of the USM students already have the basic knowledge on environmental conservation; as some of the subjects that they have taken in the university are relevant to the environment and river conservation. In

general, USM students from School of Biological Sciences have their strength in differentiating the type of aquatic life; those students from School of Industrial Technology have more experience and knowledge in using the water testing equipment; whereas students from the School of Humanities are often good in communication, social skills and teaching skills (Chan, 2014). Under the PRWEP, USM student volunteers get the opportunity to transfer what they know to the participants during their engagement with the community. The volunteers have to carve out at least a few hours per month for this activity from their university's responsibilities to focus on engaging with school children, people from the local communities, and to provide and apply their knowledge in helping to solve Penang's water issues.

Student-NGO-Community Engagement: A Sustainable Partnership

The community engagement programme is a process of creating a shared vision among the community with the collaborators in society (for example, university, NGOs, public and government sectors) as equal partners. The programme should be a long-term collaborative programme. The outcome of a sustainable community engagement model should be a win-win situation and mutually beneficial to the university and the community (Lai, Phang, & Chan, 2014). Moreover, in order to effectively engage community in river and water conservation, it is important for the organiser to provide good facilitators to run the programme. Although the NGO partner (WWP) can provide support in terms of expertise and training resources, it has limited funds. In the case of the PRWEP, however, the funds are provided by the PBAPP Sdn. Bhd., a privatised water company. Finally, the university partner (USM) provides the human resources, viz. the facilitators (USM students), the water testing equipment and the expertise. The organiser (WWP) merely needs to combine and utilise all these resources provided by the different partners in running the PWREP. Since each partner is providing different resources in a sustainable manner, the PWREP is considered sustainable. This is because funding of the programme is sustained by PBAPP Sdn. Bhd. whereas facilitators, equipment and expertise are sustained by USM, and the running and operations are sustained by WWP.

This programme is important for Penang State as it is very important to engage the community (a major water consumer/stakeholder) to protect the state's limited water resources. In order to ensure the sustainability of water resources in Penang state, the community needs to have high awareness, deep knowledge and commitment to protect river and water resources. For the university students, this programme provides them with a great opportunity to develop their academic and interpersonal skills as well as to enhance their working abilities. They get to be trained as facilitators and also get to run projects in a professional environment towards building up their own capacities. Overall, this programme demonstrates a highly successful and sustainable model of environmental partnership employing university-industry-community engagement. Under the PRWEP, all parties have benefited - the university students, the private sector, the community and the NGO. Without the combined effort of all, none of the individual parties would have achieved their individual targets. The beneficiaries of the programme included the following: (i) The participants (school children and community) gained knowledge, skills and enhanced awareness on river and water conservation; (ii) The river environment is protected and conserved; (iii) The river water quality is monitored and improved due to greater public awareness (meaning less pollution) along the river corridors; (iv) The people and aquatic organisms as a better quality of life is provided due to improvement in river and water quality; (v) The NGO (WWP) benefits as its objectives of raising public awareness and educating the public on river and water issues are achieved. WWP also benefited as the main costs of the programme is borne by PBAPP Sdn. Bhd. (by providing funds) and USM (by providing USM student volunteers and water testing equipment); (vi) The USM students benefited in terms of improvement in their communication skills, gained teaching experience, improved mentoring skills and indirectly increased their awareness on social issues and better career opportunities.

As result of this partnership, WWP managed to organise 13 river educational programmes in 2011. More than 600 school students from Penang state participated in this programme in 2011.

Conclusion

The Penang River and Water Educational Programme proved to be a good partnership model in university-industry-community engagement. More importantly, this programme engaged the university students and the community in a close relationship which benefited many parties. The sustainability of this programme is also ensured as each partner offered different resources without overlapping one another. The engagement shown in this partnership not only benefits the university students and communities, but also benefits USM, WWP and PBAPP. The organiser, WWP, achieved financial sustainability through the support from the private sector and the engagement of USM students as facilitators. The USM students gained valuable experience in this programme and enhanced their skills and employability. USM also gained a great deal of mileage as its name and logo are printed on the banners, certificates and programme reports. Hence, USM is considered as a main partner of this programme. This results in media coverage and the name of the university being mentioned in television reports, newspaper reports and radio announcements. This has raised the profile of the university as a university that is responsible towards society and environment, contributing towards USM's aim to become one of the world's leading universities in community engagement and environmental sustainability. For the school children, they had a great opportunity to learn outside the classroom, gained valuable knowledge on river and water conservation, and gained increased awareness and sensitivity towards river and water issues. For the short-term outcome, this programme improved community knowledge and raised people's awareness on river and water conservation through media reports. For the medium-term outcome, media news coverage on the programme certainly contributed towards less public pollution of rivers but greater public efforts to take action in protecting Penang's river and water resources. Finally, the long-term outcome of this programme is ultimately the protection and conservation of river and water resources by all stakeholders, leading to greater water security and a better quality of life for the people in Penang.

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