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Developing Indonesian Capacity in Water and Sanitation: Lessons Learned and the Constraints Associated with Challenging Convention

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Abstract: This paper critically examines a project aimed at improving Indonesian capacity in water and sanitation through a process of institutional strengthening. Funded by the Australian Agency for International Development (AusAID) this involved the partnering of Murdoch University's Environmental Technology Centre (ETC), Australia and Merdeka University's Institute for Environmental Management and Technology (IEMT), Indonesia. Through a series of collaborative activities, the project sought to develop the capacity of IEMT staff to be better able to provide services and training to local government, NGOs, industry and academia on water and sanitation. The project comprised of three phases designed to 1) understand IEMT's existing capacity; 2) identify the needs and priorities of IEMT's stakeholders; and, 3) to further develop IEMT's capacity through the joint implementation of a training-of-trainers workshop. Each of the phases was delivered with some success. However, by means of participant observation, interviews with project members and stakeholders as well as subsequent qualitative analysis the activities were critiqued identifying a number of areas of concern. Foremost, it was concluded that the training-of-trainers model was not appropriate in this context due to inconsistencies with good practice guidelines for capacity building and learning theory. Further, it was established that while the needs were assessed the extent to which they informed decision making was limited. It is suggested that these challenges are not uncommon in capacity building projects of a similar nature. This is due to the fact that the approach employed is often strongly influenced by the experience and expectations of the project members. And, that there is a lack of appropriate training models for use in capacity development from which to draw experience. As such, the resulting training is often the replication of a familiar approach that may do little to develop the capacity of the target audience.

Keywords: Capacity Building, Constraints, Critique, Training, Training of Trainer

Introduction

THE MILLENNIUM DEVELOPMENT Goals (MDGs) consist of eight goals intended to respond to the world's main development challenges thereby reducing poverty and improving lives (UNDP, 2005). The Public Sector Linkages Program (PSLP) project described in this paper, hereafter referred to as the PSLP project, was designed to respond to the seventh of these goals, which aims to ensure environmental sustainability, by addressing one of the targets associated with this goal. That target is to halve by 2015 the proportion of people without sustainable access to safe drinking water and sanitation (UN, 2000).

In Indonesia, 64 percent of the population has access to adequate or basic sanitation and only 50 percent of the population have access to clean water (UNDG, 2004). The PSLP project aimed to address this development challenge by facilitating improvements in Indonesian capacity in water and sanitation through a process of institutional strengthening. Funded by the Australian Agency for International Development (AusAID) Public Sector Linkages

Program (PSLP) this involved the partnering of Murdoch University's Environmental Technology Centre (ETC) and Merdeka University's Institute for Environmental Management and Technology (IEMT). Through a series of collaborative activities, the project sought to develop the capacity of IEMT staff to be better able to provide services and training on water and sanitation to their stakeholders (e.g., individuals from local government, non-government organisations (NGOs), industry and academia).

At the same time, the PSLP project served as a case for qualitative inquiry into the practice of delivering a capacity development project. The purpose of this inquiry was twofold: firstly, the research aimed to explore the process in order to further understand the complexity associated with delivering capacity development initiatives on water and sanitation in Indonesia. Secondly, the research intended to identify aspects of the process that may benefit from improvement, such as the methods used to develop capacity.

The term capacity development is contentious and there is no agreed upon definition. The United Na-



tions Environment Program (UNEP) (2002) articulates the meaning of capacity development as

...building abilities, relationships and values that will enable organisations, groups and individuals to improve their performance and achieve their development objectives. It includes strengthening the processes, systems and rules that influence collective and individual behaviours and performance in all development endeavours. And it means enhancing people's technical ability and willingness to play new developmental roles and adapt to new demands and situations. (p.5)

Capacity development is now widely recognised as one of the highest priority areas for development in the 21st century. As reported by the OECD (2006, p.3) "adequate country capacity is one of the critical missing factors in current efforts to meet the Millennium Development Goals". Even so, capacity development initiatives are frequently criticised for crushing local capacity, utilising inappropriate methods, wasting resources and fixating on results (Fukuda-Parr, Lopes and Malik, 2002; Potter and Brough, 2004; Eade, 2007).

In this paper, using the definition above, the emphasis is on the means used in the PSLP project to enhance IEMT's and their stakeholders' technical ability to deliver training on water and sanitation. Specifically, this paper critically examines the fifth and final activity of the project, a training-of-trainers (TOT) workshop on sustainable sanitation and the extent to which this method was appropriate for developing capacity. In doing so, the activities of the PSLP project are described. The main criticisms of the approach are highlighted. Finally, the lessons learned are presented along with some of the difficulties associated with delivering capacity development in a manner that challenges convention.

PSLP Project Overview

The PSLP project comprised of three main phases and a series of corresponding activities. In this section, each of the following phases and activities are described:

Phase I: Understanding IEMT's existing capacity

- Activity 1: Joint ETC-IEMT workshop
- Activity 2: Visit from the Rector of Merdeka University

Phase II: Identifying the needs and priorities of IEMT's stakeholders

- Activity 3: Needs assessment interviews
- Activity 4: Seminar on capacity building on water and sanitation

Phase III: Developing IEMT's capacity to deliver training

- Activity 5: Training-of-trainers workshop on sustainable sanitation

Firstly, however, it is useful to understand that in carrying out these activities, an additional aim of the project was to make use of one of four training packages, developed by ETC and the Teaching and Learning Centre (TLC) at Murdoch University, in collaboration with the United Nations Environment Program International Environmental Technology Centre (UNEP-IETC). The four ETC-UNEP-IETC training packages, on sustainable sanitation (SuSAN), rainwater harvesting (RWH), water demand management (WDM) and wastewater reuse (WWR), comprise of a monograph, training manual and study guide, PowerPoint presentations and an eLearning module. It was intended that the selected training package would be translated into Indonesian and provide the basis for the training-of-trainers workshop delivered in phase three.

Phase I: Understanding IEMT's Existing Capacity

The first phase of the project involved two activities held at Murdoch University; the first a joint ETC and IEMT workshop and the second a visit from the Rector of Merdeka University. The joint ETC and IEMT workshop was attended by the core project members from both institutions. The main aim of the workshop was to begin the process of understanding the existing capacities of IEMT and its staff members. At the same time, the workshop was an important first step in terms of building a relationship between the project members based on trust and cultural awareness. Further, from a project management perspective, the workshop provided an opportunity to clarify roles and responsibilities and further plan the subsequent activities.

The Rector of Merdeka University visited Murdoch University for one day to meet with Murdoch staff and project members, and to visit the Environmental Technology Centre. This visit was intended to secure institutional support for the project. It was also anticipated that the visit would gain the Rector's attention and create a climate of good will.

Phase II: Identifying Stakeholder Needs and Priorities

The second phase of the PSLP project involved the assessment of local needs and priorities, in particular with respect to training, in relation to water and sanitation. The needs assessment component of the project was carried out on the basis that if IEMT

were to deliver services and training to their stakeholders how well they could do this would depend on clarity regarding their needs. In addition, it was intended that the findings of the needs assessment would inform decision making regarding the subject of the training-of-trainers workshop to be held in the third phase of the project.

The activities of the second phase included interviews with IEMT's stakeholders and a seminar for these stakeholders on capacity building on water and sanitation. The project coordinator (researcher) spent two months in Indonesia in order to facilitate the needs assessment process and assist in the preparation and implementation of the seminar.

With respect to assessing needs, nineteen stakeholders were interviewed; the interviews focused on the following four areas:

- *Problems*: the main areas of concern about water and sanitation in Indonesia.
- *Needs*: the kinds of activities, information and training in water and sanitation that would be useful to the stakeholders.
- *Training priorities and needs*: the topics on which training would be useful.
- *Success factors and potential limitations*: the factors that might contribute to the success or failure of the project.

In the week following the needs assessment interviews a 'Capacity Building on Water and Sanitation Seminar' was held at Merdeka University. In total, 43 stakeholders participated in the seminar. The purpose of the seminar was for stakeholders to meet in order to share, discuss and prioritise their needs, in particular the most appropriate local needs for the training-of-trainers workshop to be held in the third phase of the project.

The seminar program combined presentations by stakeholders with discussions. In addition, in the final session of the seminar, participants were asked to select and prioritise three topics, from a list of fourteen provided (including RWH, SuSAN, WDM and WWR), that they would like to receive training on as part of the ongoing activities of the PSLP project. Through this process it was decided that the training workshop would be carried out on sustainable sanitation using the 'ETC-UNEP-IETC Training Package on Sustainable Sanitation' (SuSAN).

Phase III: Developing IEMT's Capacity

The final phase of the project was a Training-of-Trainers Workshop on Sustainable Sanitation carried out over three days at Merdeka University. It was anticipated that the joint implementation of the training workshop would provide an opportunity to

further develop the capacity of IEMT to deliver training to their stakeholders.

The workshop was facilitated by project members from IEMT and ETC and attended by 33 stakeholders. The workshop program included:

- Guest lectures on learning, training and eLearning in the 21st century
- Technical presentations on sanitation technologies
- Presentations on capacity building and community awareness

In addition, attendees participated in working group sessions to develop action plans for future TOTs and demonstration projects and an eLearning session demonstrating the eLearning component of the training package.

It is the TOT Workshop on Sustainable Sanitation that forms the basis of this paper. In the following sections this activity is further described and critiqued.

Developing Capacity Using the TOT Approach

Training-of-Trainers, sometimes referred to as 'Train the Trainer' or 'Training-the-Trainers', is a method widely utilised by development agencies (e.g., national public bodies [British Council and International Development Research Centre Canada] and UN organisations [United Nations Environment Program]) as a means for developing capacity. This method is used to train individuals to either be trainers in a generic sense and or trainers on a specific subject (e.g., wetland management, microfinance, sustainable sanitation). The assumption is that the TOT model will be replicated by these participants and the participants of all subsequent TOTs (Kaplan, 2000) generating an ever increasing group of trainers. The training activity often utilises a training package or manual, such as the SuSAN package described above, which is designed to provide the necessary resource base to facilitate future training.

The TOT approach to developing capacity is thought to have a range of benefits associated with the multiplier effect it affords. For example, the potential to maximise development outcomes, underpin sustainability and achieve more with less (e.g., money, time, staff and other resources) (Manager PSLP – AusAID, personal communication, 2 May 2006). However, there are also a number of criticisms of TOT. As Deri (1996 p.1) comments "most TOTs are plain training courses with no or little preparation of participants on how to replicate the training they are receiving". Moreover, as Kaplan (2000) cautions, this approach implies that what we require to develop capacity is trainers. That is, even if the TOT is imple-

mented in the way intended, expanding a country's body of trainers may do little to develop capacity beyond the individual's capacity to deliver training.

Methods

The principal research strategy employed was that of participant observation. According to the widely used fourfold typology for participant observation (Gold, 1958) in this case the researcher was a 'participant-as-observer'. That is, the researcher had the dual roles of observing and participating in the project and project members were aware of these positions. The data collection methods employed included the analysis of project documentation, observation of all project and research activities, informal and formal interviews, questionnaires and synthesis and reflection.

Aside from the researcher, the participants in the research comprised of two main groups, the project members and project stakeholders. The project members included six ETC and four IEMT staff who participated in the project as joint partners in its implementation. The project stakeholders included sixty-five individuals from local government, NGOs, semi-private companies, hospitals, academia, and industry identified as having a stake or interest in water and sanitation related issues. Though the identity of the individual research participants is not disclosed, for the sake of clarity identifiers are used throughout the paper. Project members from ETC and IEMT are given the identifiers PMETC1 to PMETC6 and PMIEMT1 to PMIEMT4 respectively. Project stakeholders are identified as PS1 to PS65.

Thematic analysis of the data was carried out using the software package QSR NUD*IST Vivo 1.1 (NVivo). The analysis was carried out in such a way that the data was coded according to emergent themes through a process of examining individual statements made and combining duplicate ideas. The key themes and pertinent data for each were further sorted and organised in order to assign weight and to prioritise the responses (e.g., according to the number of participants who made the same response). Further analysis and synthesis of the data involved reflection and consideration of the data in light of the purpose of the inquiry. Namely, to identify aspects of the process of developing capacity that may benefit from improvement.

TOT Workshop on Sustainable Sanitation

The TOT approach was selected as a method for developing the capacity of IEMT staff and their stakeholders to deliver training on sustainable sanitation primarily because it provided an opportunity

to make use of one of the four ETC-UNEP-IETC training packages. It was also selected due to the perceived benefits afforded by a TOT as outlined above.

The TOT workshop was delivered with some success; however, analysis of the activities revealed three main shortcomings:

1. The training workshop was not pedagogically appropriate, either in or of itself as a learning activity, or in terms of training the trainees to be trainers.
2. The training materials were translated into Indonesian, but not customised for local use.
3. The trainees, though committed and engaged in the process, lacked the necessary funding and support to carry out further training and train others.

Additionally, through synthesis and reflection, factors that may have limited the successful implementation of the TOT and led to the aforementioned shortcomings were identified. In the following sections, the shortcomings of the TOT workshop are described in more detail and the potential limiting factors are discussed.

Main Shortcomings

Inappropriate Pedagogy

Presentation of and an Emphasis on Content

As outlined by Merrill (2002 p.44) "effective learning environments involve the student in four distinct phases of learning: (a) activation of prior experience, (b) demonstration of skills, (c) application of skills, and (d) integration of these skills into real-world activities". Moreover, according to adult learning theory, learning is promoted when the teacher acts as facilitator instead of imposing material on the student (Burns, 1995).

The TOT workshop neither involved the stakeholders in the four distinct phases of learning nor took into account adult learning theory. The workshop program consisted almost entirely of technical presentations with project members adopting the role of instructor as opposed to facilitator. These limitations were also identified by stakeholders interviewed during the workshop. Stakeholders, felt they needed training that "had a lot of practice" (PS7), that the "local issue of Indonesia should be raised" (PS54) and that the "workshop needed a real example in the field (field observation)" (PS53).

In addition, while the program focused on the technical content, adult learning theory and training methodologies were largely ignored. This meant that participants were not provided with the necessary

skills to carry out further training. As one stakeholder commented, they needed training that included a “strategy of communicating this matter to the community” (PS26).

Social Dimensions of Learning

Bransford, Brown, and Cocking (1999; 2000) conclude that participation in social practice is a fundamental form of learning. Moreover, in capacity building, the social aspects of a learning activity can provide opportunities for building long-term relationships and ongoing networking with benefits beyond the timeframe of the activity. The TOT workshop, though delivered face-to-face, did not optimise the social dimension of learning. Rather, a number of factors limited opportunities for social engagement. For example, the workshop program did not include a social function; the meals were provided in boxes which were eaten at the participant’s desk; the room in which the workshop took place was small and crowded; and the program did not include a field trip. These factors resulted in reduced opportunities for participants to informally interact and socialise with each other.

Duration of the Activities

The workshop took place over a period of three days instead of the five days budgeted and planned for. This was due to project members’ understanding that time is often a problem when training people who are already fully occupied with their jobs. However, the decision to reduce the duration of the workshop and resulting pressure on the schedule may have led to decisions that affected the learning experience, for example the decision not to have a field-trip and limited opportunities for discussion. In the workshop evaluation questionnaire (anonymous), the participants were asked to comment on the duration of the workshop. Though there were several participants who felt the time was enough, the majority indicated that the time was too short. The participants commented that the workshop was too short “to discuss sanitation”, “that it was difficult to cover the topics well”, the “schedule was too tight”, “there wasn’t enough time for discussion” and “that there needed to be time to practice or for a field visit”.

Training Materials Translated, but not Customised

As described above, the TOT workshop utilised the SuSAN Training Package. This training package was developed as a generic set of resources for a wide range of users (e.g., regional and national centres, university teachers, professional training, policy makers and regulators, consultants and development

assistance bodies) (UNEP, 2004). For the purposes of the PSLP project, all training materials, apart from the slides, were translated into Indonesian.

While interviews with stakeholders revealed a need for materials in order to carry out training, in particular “training media for instance books and other tools/instruments”, “reference materials” (PS24) and “modules” (PS21). The stakeholders also identified two limitations of the package. Firstly, a majority commented that the most useful aspect of the package was the slides, “because they [local community] can just watch and listen and slides are interesting. Slides can also be modified” (PM18). Yet, the slides were not translated due to the large number of slides and associated cost. Secondly, a number of stakeholders remarked that the materials would have benefited from including “local examples”. It was also observed by the researcher, that many of the stakeholders required materials for use in settings other than formal training programs (e.g., preaching, lectures and work- and community-based programs). Therefore, materials such as posters and pamphlets, as well as the slides may have also been useful.

Lack of Ongoing Support and Funding

In order to maximise the outcomes of a TOT, in terms of it being replicated by the trainees, it is important that trainees not only have the skills to carry out further training but also the ability (e.g., time, resources and support). However, in interviews carried out with stakeholders at the end of the workshop it was revealed that in order to do so many stakeholders felt that they would require “funding” and “support from the institution” (PS23).

During the course of the project it was observed, that though an institute by name, IEMT was not an institution by nature. As a result, IEMT were not in a position to provide the necessary ongoing support as they lacked the institutional capacity both in terms of available facilities as well as human and financial resources.

Limiting Factors

There are a number of interrelated factors that may have limited the successful implementation of the TOT each of which are discussed further here.

Lack of Culturally Appropriate Pedagogical Expertise

All PSLP project members were academics with technical expertise relating primarily to water and sanitation technologies. While project members from IEMT and ETC had experience in the education sector and in providing training, only one project

member from Murdoch University had expertise in educational design, training methodologies and adult learning theory. Moreover, while it was anticipated that IEMT staff would have knowledge of the local context and culturally appropriate pedagogy it appears that this may not have been the case. For example, while small group sessions and discussion were considered desirable by project members from ETC, IEMT indicated that in Indonesia this might not be appropriate: “people in Indonesia are shy, the one who speaks a lot [has a] circular discussion and never touches the question” (PMIEMT2). However, in the workshop evaluation participants indicated that they would have liked more discussion. In addition, though there is no direct evidence to support this, the researcher felt that in-country staff underestimated the abilities of the stakeholders. In informal discussions with IEMT staff, concerns were raised that the materials could be too technical and that it would be difficult to engage participants in the activities for their duration. Contrary to this, some stakeholders indicated that they would like “advanced training” (PS20) and there was sustained and increased interest in the activities.

Cross Cultural Challenges Associated with Working Collaboratively

The implementation of the TOT workshop by IEMT and ETC project members was intended to be collaborative, to further develop the capacity of IEMT to deliver training to their stakeholders through the practical experience of doing so. As such, this process was potentially a learning experience. However, cross-cultural differences may have made it difficult for ETC and IEMT staff to act in a truly collaborative manner, learn from the experience and implement the activities more appropriately.

The project coordinator (researcher) from ETC, who spent two months in Indonesia as part of the project, experienced a number of difficulties working with IEMT staff. Specifically, there were difficulties associated with establishing the project coordinator’s role in decision making and with communication. It was observed that the working relationship with IEMT project members was constrained due to cross-cultural differences in communication style (direct vs. indirect), the time to build relationships and trust (short vs. long) and group structure (egalitarian vs. hierarchical).

The hierarchical nature of Indonesian society, in particular manifested itself in a number of ways that potentially impacted on project members’ ability to work collaboratively. For example, from the view point of Indonesian staff, the project coordinator’s status was low. This was likely due to the project coordinator being female, unmarried, younger than and less qualified than other project members as well

as the short length of the relationship with IEMT. Conversely, the project leader from ETC was held in high regard due to a long standing relationship with IEMT staff, including as a professor and also former academic supervisor to one of the IEMT project members. It was observed that the status of project members influenced who was in a position to provide advice, guidance or instruction. As a result, it was difficult to act collaboratively and the opportunities for learning were limited.

Lack of Local Ownership

The concept for the PSLP project was developed by ETC project members who, due to the previously mentioned longstanding relationship with IEMT staff, felt that they were “aware of IEMT’s needs” (PMETC1). The proposal was reviewed in the final stages by the director of IEMT, but other IEMT project members did not have an opportunity to comment on the program prior to activity one. As such, it was observed that the project members did not have a sense of ownership over the project and although on the whole appeared committed to seeing the project succeed, to some extent lacked motivation.

During the project, efforts were made to foster ownership over the process, for example it was agreed that IEMT staff should develop the TOT workshop program and take the lead on this activity. However, this may have been too little too late. The degree of ownership and associated level of motivation of the project members was potentially further diminished due to the voluntary nature of the activities (in so far that project members were not paid). This was especially problematic for Indonesian staff members because of the meagre pay that they receive (e.g., A\$120-200 per month). This lack of payment combined with heavy workloads impacted on the project member’s available time and commitment to the project. On this subject one project member said “I work hard on many projects and I enjoy it, but I expect something from every activity” (PMIEMT2). As for the reason why the project members from IEMT were not paid, according to the PSLP guidelines “salaries or associated staff costs of partner country counterpart organisations [e.g., IEMT] cannot be met” by the fund (AusAID, 2004 p.6). However, they do not provide a rationale for this.

Lack of Institutional Capacity and Strengthening

The PSLP project aimed to facilitate improvements in Indonesian capacity in water and sanitation through a process of institutional strengthening. However, as identified above, during the course of the project it became evident that IEMT was not an

institute in the sense that staff worked together on projects. Rather, due to financial needs, staff members had more than one job and acted independently under the banner of the institute. Project members from ETC remarked after the Capacity Building on Water and Sanitation Seminar (Activity 4) that “because IEMT as an institution is very weak, in the PSLP project we are really developing individual capacity” (PMETC6).

Conclusions and Lessons Learned

In summary, there were a number of factors that potentially impacted on the successful implementation of the TOT workshop and PSLP project as a whole, including:

- A lack of appropriate expertise among project members which resulted in a program that emphasised content and failed to train the trainees to be trainers.
- The cross-cultural challenges associated with working collaboratively making it difficult for project members to work together and negotiate a more appropriate program.

- A lack of local ownership over the project and activities and in particular the voluntary nature of the activities which meant that project members may not have had the time nor the inclination to implement something exemplary.
- A lack of institutional capacity to fund and support ongoing training and the failure to recognise this earlier and either select an alternative to the TOT method and or identify mechanisms for providing ongoing funding and support to stakeholders.

On the basis of this inquiry it was concluded that the TOT approach to developing capacity, though potentially problematic in itself, was neither appropriate in this context nor implemented effectively. Moreover, through this process it was possible to identify a number of lessons that may contribute to improvements in future capacity development activities such as training workshops. These lessons are not necessarily new and many organisations and individuals have identified similar lessons (e.g., AusAID (n.d.); OECD (2006)). Some of the lessons learned from the PSLP project are presented in Table 1.

Table 1: The PSLP Project: Lessons Learned

#	Lessons
1	Program developers and implementers need to be selected on the basis that they have the appropriate expertise.
2	The activities should do more than present content and take into consideration appropriate training methodologies and adult learning theory.
3	It is important to ensure that the program of activities is culturally appropriate, but at the same time does more than simply conform with and replicate what people are familiar with.
4	The provision of a generic training package may be a useful starting point, but only if the transition from this to locally appropriate materials is facilitated (and goes beyond translation).
5	Given the likely diversity of stakeholder needs, training workshops could include sessions designed to facilitate the development of resources with the stakeholders.
6	The project should be designed so that after its completion the target audience are better able to facilitate learning (in any number of ways).
7	To facilitate ownership over the project all project members should be involved in the design, planning and implementation of the project.
8	Project members in partner countries should be paid or other incentives should be provided.
9	Consideration needs to be given to the kind of support that can be given to stakeholders beyond the timeframe of the project.
10	In so far as it is culturally appropriate, the project should be managed in a participatory and collaborative manner.
11	Cultural competency is critical; the project activities should include a session on cultural differences in particular those that may impact on working arrangements e.g., communication.

This research highlights some of the many challenges associated with developing capacity even when practitioners are aware of the potential barriers to developing capacity. Further it is suggested that the selection and implementation of a conventional approach to developing capacity is often strongly influenced by the experience of the project members. As such, the resulting training is often the replication of a familiar approach that may do little to develop the

capacity of the target audience. This paper is the first part of a research project that aims to identify alternative training models and or improve existing approaches to developing capacity.

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About the Authors

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Davina's research is broadly aimed at improving the process of developing capacity particularly the methods used to train and disseminate materials to decisions makers in academia, NGOs, industry and local government. In addition Davina works as a private consultant on a range of projects as an educational designer, project coordinator, researcher and facilitator.

Rob Phillips

Dr Rob Phillips works in the Teaching and Learning Centre at Murdoch University, Perth Western Australia. He combines thorough pedagogical knowledge with strong information technology skills, and has broad, but practical research interests. These interests include evaluation of learning using ICT; making innovative use of technology; and project management.

Goen Ho

Goen was instrumental in establishing the Environmental Technology Centre at Murdoch University. The Centre aims to develop technologies to assist with sustainable development. He was for many years its Director and more recently Chair of its Board of Management (<http://www.etc.murdoch.edu.au>).

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