



# The Role of Universities in Information Technology for Development in Asia (U-ICT4D)

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## Final Technical Report

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## Project Synthesis

What is the role of the university in supporting local and national efforts to harness ICT for socio-economic development? To date, most attention in the higher education sector has focused on distance learning, e-learning, and other efforts to enhance the learning experience and extend the reach of education to remote locations and non-traditional students. This project examines a different and as yet under-appreciated opportunity for universities to play a central role in studying and teaching about ICT for development (ICT4D) in ways that directly contribute to the developmental priorities of their countries.

The project, coordinated by the Center for Ethics of Science and Technology at Chulalongkorn University, will produce the first study illuminating the current state and future potential of university engagement in the local and national ICT4D priorities of eleven Asian countries. A secondary objective is to advance network building among Asian ICT4D scholars and institutions. Both objectives serve to build the foundation for future university ICT4D programs in the region. This project aims to open up a discourse in this emerging field and to stimulate the creation and expansion of U-ICT4D activities by reaching key audiences among universities, governments, donor organizations and partnering institutions.

The project consists of ten research teams, one for the following countries: Thailand, Vietnam, Malaysia, Singapore, Philippines, Bangladesh, India, Cambodia, Indonesia and China. The main body of the research consists of a network survey to find out the level of activities on U-ICT4D, a series of indepth interviews, and documentary research on the past involvement of the universities as well as the current policies on higher education and its role in development. The project also involves two major research centers in the United States, namely the Center for Internet Studies, University of Washington, represented by Mr. Chris Coward, and the Berkman Center for Internet and Society, Harvard University, represented by Dr. Colin Maclay. The two American members of the project contributed to project coordination and overall

During the implementation period of the project, there were three workshop meetings. The first one took place in Singapore in March 2006; the second one in Bangkok in April the same year, and the last one in Hué, Vietnam in January 2007. The major findings are that universities in the majority of the countries surveyed, except for Singapore, focus more on teaching than on research and they typically are not much involved in development activities. The Singaporean university is an exception because they perform at a very high level in terms of research. In any case there are only a few programs of study on information technology for development, broadly construed. Universities are also rather traditional in their rather rigid separation among the various academic disciplines and collaborations among different fields are an exception rather than the norm. However, this is beginning to change as university administrators and professors have started to see the merit and advantages of close interdisciplinary collaboration. In any case, more effort would be needed before universities in the region can become a significant player in the effort on ICT4D.

## Research Problem

What is the role of the university in supporting local and national efforts to harness ICT for socio-economic development? To date, most attention in the higher education sector has focused on distance learning, e-learning, and other efforts to enhance the learning experience and extend the reach of education to remote locations and non-traditional students.

This project examines a different and as yet under-appreciated opportunity for universities to play a central role in studying and teaching about ICT for development (ICT4D), in the context of Asia. It also considers the broad societal changes that are accompanying the emergence of information societies around the world. The challenges and opportunities inherent in any socio-economic transition of this magnitude require the detached, analytical perspective that universities offer. And yet so few universities anywhere, but especially in the developing world where the need is greatest, effectively link their knowledge of information technology and human development to both understand the dynamics of ICT4D and ensure that these technologies support the developmental priorities of their communities.

Nevertheless, there have been a few exceptional cases where a number of centers in universities in the South have instituted innovative programs that are encouraging. The National University of Singapore offers a comprehensive curriculum fusing technology and social science-based inquiry to prepare students to face the “economy, society and polity of the information age.” A research group at the Indian Institute of Technology in Madras develops technologies for low income and rural areas and fosters entrepreneurial businesses that service these communities. An institute within De la Salle University organizes e-governance workshops for the League of Cities and develops policy papers for the national government. A research center at the Universidad de la Frontera in Chile works with community members, the private sector and government agencies to support a network of 32 telecenters servicing low income and indigenous people.

What these programs have in common is a strong commitment to linking the opportunities of the information revolution to the specific developmental needs of their communities. They are accomplishing this through innovative programs in teaching, research and outreach that are at the core of the university mission, reconfiguring the relationships between these activities, and opening up the ivory tower. We label these activities “university ICT4D programs,” because they take on different challenges from more widespread ICT education programs in IT fluency, e-Learning, distance learning and the like.

Yet, the role of the university in contributing to ICT4D is little understood and underappreciated given the importance many observers attribute to higher education if countries in the developing world are to make the transition to knowledge societies. These deficits exist in society generally, the international community, and even within the university community itself.

The proposed project is a continuation of other previous efforts on the role of the university in ICT4D, which have been initiated by the Center for Internet Studies at the

University of Washington. The Center for Internet Studies has organized a number of seminars on the issue, the last of which took place in Manila, the Philippines in January 2005 (<http://www.cis.washington.edu/projects/manila2005>). That event, which convened over 50 people from academia, government, international development agencies, and donor organizations, made significant progress towards the goals of discussing the broad aims of U-ICT4D, sharing successful programs from around the world, identifying challenges, and fostering a community of practice for this emerging field. Furthermore, participants agreed on the need for regional and local efforts, as well as network building and greater institutionalization of formal programs. The key players in the present project, namely Soraj Hongladarom, Pattarasinee Bhattarakosol, Chris Coward, and Colin Maclay, met for the first time at the Manila conference, along with Maria Ng of IDRC.

The project focus is Asia for the following three reasons in particular. First, relative to other regions, Asia is home to a large number of countries that have made explicit commitments and devoted substantial resources to harnessing ICT for socio-economic development. Many countries (such as Thailand, Indonesia, Malaysia, and the Philippines) have attained a level of economic development that situate them for taking advantage of ICT more than countries in the least developed category (see, for example, Yoon ed., *Digital Review of Asia Pacific 2005/2006* and Dutta, Lanvin and Paua ed., *The Global Information Technology Report 2004-2005*). Second, the countries of Asia have sustained investments in higher education over periods when the countries in other continents focused their resources on K-12 education (World Bank, *Constructing Knowledge Societies: New Challenges for Tertiary Education*, 2002). And third, it includes India and China. India is well known to represent the grandest experiments to apply ICT for poverty alleviation, taking advantage of their vaunted high-tech sector. They have a world class higher education system that produces tens of thousands of technology experts every year. And yet, anecdotally, these universities do not seem to have developed commensurate strengths in other disciplines (i.e. development studies, urban sociology, economic geography) that arguably would be able to make a strong contribution to realizing India's aspirations in ICT4D. China, too, is quickly becoming a regional powerhouse in ICT and they have committed significant resources to the education sector that will make a lasting difference not only in China but in the region. At the same time, it is important to include the less developed countries of Southeast Asia (e.g. Cambodia, Laos) and to explore ways to create partnerships and networks that will benefit these countries. Eventually, we would like to study other regions – Latin America and Africa – but to begin with it is our hope that this study will provide insights and a roadmap for countries in any part of the world to think through their education policies and consider how they may promote university engagement in ICT4D.

Finally, this research project is best led by a university that exemplifies the movement it represents to establish formal programs in universities in this field. The PI of this proposal recently succeeded in establishing such a program—The Center for Ethics of Science and Technology (CEST) at Chulalongkorn University—and, therefore, has first hand knowledge of the opportunities, constraints and process of creating an interdisciplinary program of this type. The mission of CEST is to conduct

research on the various aspects related to the ethical values of science and technology as well as on the relations among science, technology, society and culture. Thus the CEST is in a well placed position to carry the torch and actually to put more focus on the developing world, especially Southeast Asia.

## **Research Findings**

The key findings of the research project are obtained from the network surveys questionnaires and a series of in-depth interviews that the team members conducted with significant players in the field of ICT4D in each country. To date only data from the network surveys are complete. Data from the interviews, on the other hand, have yet to arrive from all the research teams. However, it is expected that these data, including the draft chapters written by each of the team, will be available very soon.

Since to date data from eight other teams except for Thailand and Malaysia have not been completed, the report will focus mostly from results obtained from these two countries.

### ***Current Involvement of Universities in ICT for Development in Thailand***

Based on our investigation, my overall assessment of the involvement of universities in Thailand would be that universities are involved to a certain extent, but certainly they are not a 'big player' in the field. ICT for development in Thailand is done primarily by the government agencies, most notably the National Electronic and Computer Technology Center (NECTEC - <http://home.nectec.or.th/>), which has a rather strong policy analysis division. Furthermore, the Ministry of Information Technology (MICT - <http://www.mict.go.th/>) also plays a role in development and policy issues. However, these two agencies do not often work with each other, as NECTEC belongs to the Ministry of Science and Technology. In Thailand it is rare for different agencies to work with each other, and it is often the case that different agencies or groups work separately on the same topic, with little or no communication between them, or sometimes they even compete against each other.

Amidst this picture, the role of universities in formulating and implementing policies regarding ICT4D is quite minimal. Neither the NECTEC nor the MICT hardly seeks the opinions or services from universities and their faculty members in their activities. This is to be expected because even the NECTEC and the MICT do not work with each other although they are charged with roughly the same line of mission, which is to develop the nation's IT infrastructure and help strengthen the country and the economy through the use of ICT's. The brief story of why this state of affairs persists in Thailand is that NECTEC was established many years before the MICT. The mission of the former is to develop both the technical and policy-oriented aspects of IT and computer technologies in general. It functions under the Ministry of Science and Technology (MOST - <http://www.most.go.th/>), whose job is to promote scientific and technological development in the Kingdom. Then three or four years ago, the previous Thaksin administration established the Ministry of Information Technology, allegedly as a proxy for controlling ICT of the country into one direction. Since they are charged with the mission of developing the nation's IT infrastructure, they see their role overlapping with that of NECTEC's, and currently there has been no systematic attempt to resolve the issue. The status quo is now that NECTEC should be focusing more on

the technical aspect (localization of software, development of Linux-based operating system, etc.), whereas the MICT focuses on the policy and regulatory issues. However, the majority of good people who are capable of doing real policy research are still working at NECTEC and the MICT does not seem to have anybody capable of doing such things.

Another reason for the rather minimal involvement of universities is that NECTEC does employ a number of in house experts, so they don't feel a need to rely on outside expertise, including those from the universities. On another hand, the MICT does co-operate with some government universities to manage their tasks. Unfortunately, it is difficult to be succeeded because of uncertain policies, lacking of resources and funding, including with the poor management system of MICT itself.

The roles that Thai universities are playing is thus primarily to produce personnel to work with these agencies. Although neither NECTEC nor MICT do not fully achieve their goal, it seems that both of these government agencies do not feel that they need to consult research work done within the universities, as they are actually doing the research by themselves, especially the NECTEC. The NECTEC contains laboratories and research groups who do work both in policies on ICT4D and on the more technical aspects of computer science, while MICT tries to play their roles with difficulties from problems mentioned previously.

Nonetheless, there have been some attempts to bridge the gap. In 2002 Chulalongkorn University organized an international conference on "Information Technology and the University in Asia" from April 3-5, 2002 (ITUA2002 - <http://www.stc.arts.chula.ac.th/ITUA/index.html> and <http://homepage.mac.com/soraj/IT/index.html>), whose objective was to investigate the various roles in which information technology can play in the functioning of universities. The leading experts from NECTEC were invited to the conference and they gave talks on what they were doing in at their agency, namely formulating policies to combat the digital divide problem and other such things. The conference did not lead to any collaboration between Chulalongkorn and NECTEC on policy research; it simply functioned as a forum for people to meet and then they went their separate ways.

Another very recent attempt was a meeting on "Empowering Technologies: Toward a Post-Thaksin Vision for Digital Thailand" (<http://cest-thailand.blogspot.com/2007/01/empowering-technologies-towards-post.html>), which was held also at Chulalongkorn University on February 1, 2007. Prof. Craig Warren Smith (<http://www.craigwarrensmith.com>) from the University of Washington, who had been collaborating with me on a variety of projects, gave a talk on how Thailand could indeed be a hub for activities related to an integration of spiritual and religious values into effort to harness IT for development purposes. Leading figures from NECTEC also came to the meeting; however, this time seems to be more promising and there have been some interests for further collaborations with the university. It remains to be seen how this will actually turn out, as it is still too early to assess at this point.

My interviews with the faculty and administrators also show that the university does not seem to play a significant role. But that is not to say that there is no involvement at all. On the contrary, there have been some promising signs. A faculty member at the Department of Journalism at the Faculty of Communication Arts at



Chula told me that one of her PhD students did her doctoral dissertation on telecenters. This research work could well provide a fresh input to the work on policy analysis and formulation that the people at NECTEC and MICT are doing. Another faculty member said that she has been doing an analysis of the potential impact of the smart ID cards on the Thai people. Three years ago the government announced a policy of requiring Thai citizens to carry a new type of ID cards which contains a computer chip. This card then could carry vastly more information than the traditional paper card. Many have voiced their concerns about the potential ethical considerations, and my colleague here has in fact organized a number of meetings and seminars where this issue was discussed and she also wrote a number of research articles on the topic. So clearly there is a case of faculty members at the university thinking about and initiating movements regarding ICT for development. However, both the NECTEC and MICT did not seem to take up on the smart ID card issue that much, since there are still government agencies, which need to follow the policy direction of the government. It is here that the strength of the universities comes to the fore, because the universities are much more independent and have certain latitude within which to criticize the policies. So they can in fact play a crucial role especially in cases where the policy directions of the government appear to go astray.

So my assessment of the role of universities is, then, that they play more a teaching and a criticizing, conscience-raising, role rather than being an active player in the field. However, the faculty members who are actively engaged in this type of research are few and far between. Most faculty members in most universities in the Kingdom focus their attention mostly on teaching and training. And another serious problem with the universities is that the program of studies is highly inflexible and resistant to change. This is not a good sign in the environment that is rapidly changing. In most universities you find a large number of programs on IT, but they are mostly in the computer science domain. Typically they teach courses such as data mining, artificial intelligence, office ergonomics, with only two courses on computer ethics, belong to Faculty of Science and Faculty of Engineering. The other, non-computer science programs, such as those on journalism, information studies and development studies, only contains a few courses on ICT4D. The program on International Development Studies at Chulalongkorn, which is the most innovative program of its kind at the moment, has only one course on ICT4D, and the instructor in that course, so I was told, does not even use emails. The reason why this happened was that the program was run by one academic department, which does not happen to have a qualified instructor on the topic, so they asked one senior professor in the department who has little IT experience to teach it, while other faculty in other departments are more qualified but they were not invited to teach in the program. So as far as curricula are concerned, efforts to teach topics in ICT4D are quite scattered in a number of different academic departments. In fact many faculties whom I interviewed said that they did not quite know what others were doing and were surprised to learn that their colleagues in other departments were doing quite the same kind of thing. Many, though, admitted that ICT4D or IT and Society is a very new area that needs to be further explored and many decried the current rigid structure of the university that prevents successful collaborative, interdisciplinary effort.

## ***Future Prospects***

Nonetheless, the problems and obstacles I have mentioned are recognized by many parties. Many interviewees I talked with agreed that this is a serious problem that impedes the status of the university as a potentially world class player in the field. So I would say that the first stage in real involvement of the university is for the university itself to take care of its house and organize its administrative structure in such a way that really effective collaborative and interdisciplinary effort is possible. Many parties, as I have said, are beginning to realize the need for the organizational structure to loosen up. However, this is still quite difficult to do because it involves much more than merely rearranging things. It has also to do with the restructuring of a major government agency (Chulalongkorn is still part of the government where faculty members are “civil servants.”), and there is very strong resistance toward any reform of the bureaucratic structure of the university itself. Many of my interviewees were relatively young and they expressed their optimism that sooner and later the “old guards” will retire and that will open up new possibilities. I was reminded of what Thomas Kuhn was saying when he said that the paradigm changes sometimes only when the older members die out or retire. Perhaps we are doing the same thing with Chulalongkorn here.

Another issue concerns the collaboration with the government agencies such as NECTEC and MICT. As NECTEC has rather strong in house research labs and (I forgot to mention - much more research budget than the university), they don't feel a need to consult us. But their weakness is precisely that they belong more directly to the government and cannot produce any results that are in conflict with the current policy direction. Here the universities have much more freedom and can produce higher quality research work, as faculty members in general have better qualifications. So the key is how to integrate the functions of the university—teaching, research and outreach—with those of the government labs. Teaching, for example, needs to be part and parcel of this attempt, so my interviewees also feel that there is a need for an independent interdisciplinary program on ICT4D, perhaps as the master's level, where faculty members from different fields come to join forces and work together as one team. Once that is in place, the people from the likes of NECTEC can join in, and thus a synergy is created.



## ***Findings: The Malaysian Case***

Survey questionnaires were sent to 128 people from 28 ICT related institutions. Of these 19 filled in survey forms and 6 were interviewed. 4 of these have filled the forms but 2 were reluctant to fill the forms because too much trouble to find information about contacts and conferences, papers written etc.

As for ICT tools, 74% believe that computer is the ICT of highest importance in socio-economic development, 63% -mobile phone, 53% email and 47% text messaging.

Of high importance are fixed line (53%) while TV (47%) and Radio (47%). None or very few thinks that mobile phone, fixed phone, computer or text messaging are of little or no importance. Few thinks that blogs are of high importance or highest importance.

Within Malaysia, 61 different people were named as those engage in research and education related to ICT4D, of these 4 people were named by more than one person interviewed. Of these 14 are people they have worked with, 20 people they know professionally and 21 are those they have collaborated or have co-authored or co-taught.

For those outside Malaysia, 48 different people were named with one person (Dr. Kamolrat Intaratat of Sukhothai Thamarasat Open University being named by 3 different respondents. Of these 13 are people they have worked with, 15 people they know professionally and 20 are those they have collaborated or have co-authored or co-taught.

56 different organizations and universities were named as those researching in ICT4D. Of these 20 are those they are aware of but never worked with, 8 they know have collaborated and 28 are those they are affiliated with / work for.

Those organisations named as research partners, meeting convener or financial support, universities came up highest (84%), national government (63%) and lowest is bank (11%).

Publications names are often in journals or conference papers. Courses taught – 9 no response and many courses named are directly related to ICT rather than development. Of courses taught in other departments, again 6 did not response. Regarding projects, 17 projects were named, of which 10 have student involvement. Most have attended conferences where presentation or paper have been made. For professional or research associations, 8 did not response. Most common sources of information are websites and journals.

## ***Attitudes***

53% strongly agree that their institutions support their work on ICT4D topics. 32% agree there are significant barriers in their university to their work. 42% agree there are funding opportunities for their work. There is a significant number who strongly disagree (21%) or disagree (26%) that there are a lot of the colleagues they can talk to about teaching and research on ICT4D. A high 63% agree that relations with other organizations are professionally are rewarding. 68% thinks that ICT4D is a field of growing importance. A high 37% (agree) and 47% (strongly agree) that ICT4D is accepted as a legitimate line of research in academic fields. Most believed that ICT4D is a not a over-researched area. Most agree that ICT4D courses are legitimate focus of study in educational institutions but it is also very difficult to get good data for ICT4D research.

## ***Analysis and Conclusion***

ICT4D is not a very much understood field. Most who have an understanding and familiarity with this terms are often those who have worked with external agencies

who have introduced this term. Among the agencies, a key player is IDRC. Agencies like Global Knowledge Partnership (GKP) which has its secretariat in Malaysia, is a keen promoter of this field. People in the universities are not all familiar with this field as can be seen from the lack of response and interest of those contacted. Most who did not respond to the survey when contacted on the phone, replied that academics have not connected ict to its contribution to development nor are pursuing such potentialities. In some universities, interdisciplinary and multidisciplinary courses are still not encouraged.

While the universities invest large sum of money into hardware and solutions for online registration and administration especially for distance learning courses and linking different campuses, not many have given attention to integrating ict into courses, research or outreach. Most ICT4D efforts are driven by individual interests and research funding.

## Fulfillment of Objectives

The main objective of this project is to uncover the current state and future potential of university engagement in the local and national ICT4D priorities of 11 Asian countries. A secondary objective is to advance network building among Asian ICT4D scholars and institutions. Both objectives serve to build the foundation for future university ICT4D programs in the region. This will be the first study of this kind anywhere in the world and aims to open up a discourse on this emerging area. It aims to stimulate U-ICT4D activities of universities, governments, donor organizations and partnering institutions.

Countries: Cambodia, China, India, Indonesia, Laos, Malaysia, Philippines, Singapore, Thailand, and Vietnam (total = 10)

### 1) Study of the ICT4D activities and potential of Asian universities

The goal of this study is to learn at both an institutional and individual level who is doing what, for what purposes, and with what outcomes. It also examines barriers and reasons for a lack of activity, awareness or interest in ICT4D. Further, we aim to understand the perspectives of non-academic stakeholders in government, industry and civil society to assess the potential demand for greater university engagement in ICT4D.

### 2) Network Building of Asian ICT4D scholars

We will utilize face-to-face and online tools to advance network building among Asian ICT4D scholars and thereby contribute to building a stronger community of practice and foundation for future programmatic development. By holding one of the project meetings in conjunction with Digital Learning Asia 2006 we will communicate the university ICT4D message and success stories to a regional audience of academic, government, and industry parties.

The two objectives are fulfilled very well after the implementation of the project. The first objective, to study the activities and the potentials on ICT4D in Asian universities, constitutes the main thrust of the project, and the methodologies designed and developed during the first phase of the project were conceived specifically to answer this major question. The methodologies of performing network surveys were designed to gauge the level of involvement of universities on the use of information technology for development. However, the focus of the project lay not only on finding out how universities are being engaged “outside” of the academic, so to speak, but also on how universities themselves are performing their more traditional roles of teaching and research. As for teaching, many parts of the network survey questionnaires focus on what kind of programs and curricular are there and how well they respond to the needs of the community and society. In this regard, it is found, as reported in the findings section, that the level of activities still focus on the traditional disciplines, with little real collaboration among different disciplines. Universities are separated into different schools and faculties and it is difficult for these divisions to work together in a significant way. As information technology for development naturally requires close

collaboration among different academic disciplines, to actually run a program of study on this topic is in itself a challenge for many universities in Asia. These findings show that the first objective has been fulfilled.

The second objective, that of building networks of scholars and scientists working on this field, is fulfilled very well also. The participants became close to one another after three workshops in Singapore, Bangkok and Hué. There was constant email communication during the period of the project, and a number of follow up activities have been conceived. The participants went to the Digital Asia Conference in 2006, which took place at the same time as the second workshop in Bangkok, so other than networking this was also an opportunity for dissemination. Moreover, many participants in the project went to the international conference on “Living in the Information Society”, which was held in Manila in April 2007. There is also another conference on information technology for development in Bangalore, India in December 2007, which further provides more opportunities for networking.

Apart from the conferences, there is a blog at <http://uICT4D.org/> managed by the Berkman Center for Internet and Society at Harvard, as well as the H<sub>2</sub>O website that collects different course syllabi from around the world. All these provide many opportunities for networking which are actually utilized by the project participants.

## **Project Design and Implementation**

### ***Conceptual and theoretical framework***

The research is built around four approaches – interviews, data collection, case studies, and secondary research on education policies. A core project team comprising individuals from Chulalongkorn University, University of Washington, Harvard University and Nanyang Technological University and/or National University of Singapore took the first step at defining and refining the research framework. This included arriving at a working definition for university ICT4D and specifying the scope of inquiry. The University of Washington did a very preliminary study in this area focusing on educational practice in the social sciences, humanities, and the professional schools of law, business and public policy. This was expanded to include medical informatics, rural computing, and other applied disciplines. One central premise of ICT4D is that technology is most effectively deployed in societal and organizational contexts. As a first step of this project the core team will develop a detailed definition of ICT4D practice within higher educational settings.

The first method of data collection was through interviews and open ended surveys. These interviews covered professional practice related to ICT4D, the professional preparation of educators, attitudes towards educational innovation, how practices/programs have come into existence, the characteristics of active programs, perceived strengths and weaknesses of educational programs in place, barriers to establishing/expanding a program, etc. The sample for these interviews were people within universities (educators and administrators) as well as people outside the university (in government industry, and civil society to gain a better understanding of actual/potential demand for such programs).

Data collection involved researchers documenting and collecting examples of ICT4D-related curriculum (formal degree programs, formal course sequences, individual courses), research centers and programs, events (e.g. conferences), and individuals (specialties, research outputs, presentations).

Case studies examined a select number of highly successful programs to gain a deeper understanding of the inner workings of these programs. In particular, case studies attempted to document the process of establishing a successful program to draw lessons for other countries and universities.

Secondary sources were also consulted to provide greater illumination to the above research. For example, some countries required that changes to a curriculum be approved by the education ministry, which would typically act as a barrier to instituting innovative ICT4D programs.

*Target universities:* The primary focus was on the leading universities in each country, with flexibility in order to capture interesting programs at other less-known universities. The project would like to uncover what is (or is not) happening at the major institutions

and also look for particularly innovative programs that may be smaller in size. Both public and private universities were covered as part of this study.

#### *Data collection*

The core project team identified one primary researcher per country to carry out all of the above activities. Researchers conducted web research, telephone and email interviews, and face-to-face interviews. Given the complexity of the topic, in most cases researchers had to visit the universities. The core team developed standardized protocols for collecting the information, including the use of web-based tools.

#### *Overall picture*

As a result, the U-ICT4D project consisted of the following activities:

##### (1) Network Surveys

Network surveys are detailed questionnaires designed to measure the subject's involvement in an area generally described as information and communication technologies for development (ICT4D), Internet and society, or similar term that addresses the intersection of information technology and society in a developing world context. For the purposes of this survey, we used ICT and socio-economic development. Specific topics included: technological innovation and adoption, education, entrepreneurship, governance, health, political participation, quality of life, gender equality and other human development issues. Communication technologies include computers, the Internet, radio, TV, mobile phones, etc.

The purpose of the survey was to understand who is doing work in this area, and in what ways people are connected through their work. It is designed to include and measure all forms of university work – teaching, research, and community engagement.

More specifically, the survey is designed to answer the following objectives:

- (a) Collecting quantitative data to support qualitative analysis ;
- (b) Gathering names and information about people doing ICT4D research ;
- (c) Exploring connections between these people, other researchers, and other organizations exerting influence in ICT4D in Asia teaching and research.

And the survey aims at answering the following questions:

- (a) How well connected are people?
- (b) With whom are they connected?
- (c) What ICT's are considered important
- (d) What courses are taught?
- (e) In what depths?
- (f) Where does their support/funding come from?
- (g) How well do they feel their institutional environment supports them?
- (h) What information sources do they use?



- (i) What conferences do they attend?
- (j) What outputs do they have?

The network surveys form the main body of the research. After all data have been collected, they will be analyzed in a special program developed by John Kelly and Pamela Koch so that comparisons of the data in many categories can be shown.

## (2) Indepth Interviews

After the data have been obtained through the network surveys, some respondents were later contacted for indepth interviews. The purpose of the interviews was to elicit further information from the selected respondents. More specifically, the project would want to know from these respondents their opinions and viewpoints on a number of issues, such as their assessments of the current policies in the university or in the government that they are aware of, among other things. In-Depth interviews provide an understanding of the *processes, opportunities and barriers* of U-ICT4D activity; the network surveys, on the other hand, provide a *static snapshot* of the kinds of networks that link university people engaged in ICT4D, rather than this broader context created with the interviews.

Together, the Network Survey and In-Depth Interviews will allow one to:

1. Assess the state of university engagement in ICT4D research, teaching and outreach,
2. Examine the linkages/impacts of these activities on community and national ICT4D programs and policies
3. Assess the potential for greater university engagement in ICT4D
4. Advance network building among Asian ICT4D scholars and institutions.

The third methodology is historical and documentary research which is also an important part of the research for each team, since they would have to find out the histories and the major focus of each university they are studying. This will help one have a clearer picture on why the current situation that they are describing is the way it is.

## **Project Outputs and Dissemination**

The outputs include a book-length volume, which is scheduled to be published jointly by the Center for Ethics of Science and Technology and the IDRC. All the chapters in the volume will also be made available freely on the Internet through the website of the Center for Internet Studies, University of Washington, and at the Center for Ethics of Science and Technology itself.

As of now the chapters are being finished and edited. It is foreseen that all the editing tasks will be completed before the end of this year and the actual volume will come out of the printer around the first three months of 2008.

The products of the project were made accessible on the Internet mostly through the <http://uICT4D.org/> website. The website of the CEST at <http://www.stc.arts.chula.ac.th/> also contained many articles from the project.

Another interesting means of knowledge dissemination is through the indepth interviews that were conducted as part of the project. University administrators, for example, became actually interested in what the project members were doing and became aware that universities could be more closely involved in ICT4D other than just teaching about it or letting individual faculty members do the work on their own. They realize that the insitutional stature of the university provides a key leverage in influencing policy change, or at least to provide more weight to the efforts of their individual faculty members.

## Capacity Building

Although the project has not been designed primarily with capacity building in mind, the capacity of many participants have visibly been enhanced through participation in the project. This is evidenced through the fact that the series of workshops and the constant communication and the exchange of experiences and viewpoints made possible by it provided opportunities for the team members, especially those in Asia to develop and to learn what their colleagues in other places are doing.

Furthermore, the focus of the project itself, which is geared toward providing policy recommendations to the university itself, a unique feature not commonly found in other development-oriented research, has seemed to engender a certain amount of interest among administrators who see the value of the recommendations provided by the project, not least of which is the value of interdisciplinary research and of closer collaboration between the university as a social institution and other such institutions in ways that lie beyond the traditional role of supplying the latter with trained personnel. This is a very significant impact. In other words, a perhaps unintended consequence of the project is that the capacity of the university as an institution was enhanced. Hence, if the IDRC looks at the university itself, and not merely the individual faculty members working in it, who are already subject to many other capacity building schemes, then it is clear that through the project the university has been subject of capacity building. The recommendations from the project will be fed back to the university, as the Project Leader has promised this to the administrators of Chulalongkorn University. This could well lead to further changes within the university for the better; it is also expected that other universities will follow suit due to their interaction with their own faculty who are members of this project.

## **Project Management**

The project is led and managed by the Center for Ethics of Science and Technology, directed by Dr. Soraj Hongladarom from the Department of Philosophy, Chulalongkorn University. Moreover, he is assisted very capably by Drs. Chris Coward and Colin MacLay. As Dr. Soraj is both the project leader and the leading member of the research team for Thailand so has his hands full, Drs. Coward and MacLay helped in providing theoretical formulations to the project and basic orientation to the members as a whole, which are highly valuable. Moreover, the ten research teams consist of a number of members in the respective countries, led by a leader who is an active member of the Project. Thus the management structure of the project is clearly defined and has worked very well.

Chulalongkorn University itself has been very supportive of the project. Apart from assisting Dr. Soraj in his work in many ways, the university, through the administrators, took keen interests in the project and would like to see the results once they are completed. The project fulfills one of the university's missions of becoming a key player in the development effort of the Kingdom through its role as a 'consultant' to society.

Last, but by no means least, is the role of the IDRC in the project. The IDRC liaison person throughout the project has been Mrs. Kathleen Flynn-Dapaah, whose unwavering interest and attention to the various specifics of the project has significantly contributed to its success. She has been a source of constant support in many ways.

## Impact

Perhaps the greatest impact of the Project is that it has generated a level of interest among a number of stakeholders in the role of universities as a active player in information technology for development, a role that heretofore has been rather neglected. This impact is measurable by the interest shown by the university administrators during the interviews of the project leader, and their commitment to support an interdisciplinary program or course of study in ICT4D and the related fields of ethics of information technology and internet and society in the near future. Moreover, government research institutions, such as NECTEC in Thailand, has shown some interest in how universities could play a more active role, which could well complement what they have been doing. At the very least, the project has shown that there is still room to grow, so to speak, regarding the role of the universities. The collaboration that the project has garnered with government research institutions will be a key factor in future projects that will be collaborative in nature, as the two institutions realize their own shortcomings and seek to complement those through closer collaboration.

As previously mentioned, considerable impact has been made through this Project on the awareness of universities on the need to look more closely at themselves, at what they have been doing and what can be done in the future so that universities serve their societies and communities more effectively. This is perhaps the most significant impact of the study. At least a number of university administrators have become aware of the inadequacies of strict separation among the academic disciplines in providing workable solutions to today's complex problems. For example, a research group has been formed at Chulalongkorn University on "Social Impact and Ethical Implications of Information Technology" that is a direct result of this present Project. The research group plans to apply for funding from the Thai Commission on Higher Education (<http://www.mua.go.th/>). It is understood by all the parties in the research group that information technology for development is an important topic that is going to be addressed and investigation in detail. After all, the digital divide problem can be regarded as an aspect of the more traditional problem in political philosophy of social justice. Ethics and development studies are clearly connected together considerably.

## Overall Assessment

Hence, I would say that the Project, being a unique and ground breaking one in that it is *reflective*, has provided an invaluable lesson in many respects. The project is reflective in the sense that it looks back at its home base, which is the university that is the working place of all but one members of the project (Kelly Hutchinson works at an NGO in Cambodia). Traditionally the university does not look at itself, and there are many reasons why that is the case. The university can look at anything that comes to be its object of study; it can survey the stars or look at ancient histories. But when it comes to looking at itself, it has strangely been rather silent. Those who have looked at the universities in a sustained manner are the administrators—board of directors, presidents, deans and the like. A prevailing culture in the university is that there is an invisible, but real line separating the administrators and the professors whose job is to look beyond the confines of the university to whatever that interests them. Professors don't typically study their own workplace (even sociologists usually look at social groups outside of their own offices and campuses), because they do not view themselves as administrators and perhaps look at the task as a rather mundane one of categorizing and cleaning up one's house, task that has been perceived as belonging to the administrator and not a professional in an academic field. Even scholars in higher education usually do not choose to study their own institutions.

The Project has thus offered a rare opportunity for professors to interview their own administrators on the policy of the university and to influence their thinking on the direction on the university as a whole, not in the context of the professor acting as another administrator, but in the context of doing research itself. This is one of the Project's greatest impacts. The Project has opened up the professors' own backyard as a legitimate field of academic study. A consequence of this is that there will be a loop feeding back to the university so that it learns about its advantages and shortcomings so that it performs its task better for the society. The Project has contributed to the diminishing of the traditional viewpoint that 'town' and 'gown' should be segregated from each other. In today's world that can be no longer viable.

Furthermore, as the subject matter of the Project concerns the role of the university in development through information technology, the university does not merely reflect back upon itself, but it does so in order that it serves society better. In the context of Asia, where universities were created more for training personnel to feed to the industry and bureaucracy, this is a welcome input since most discussions about the role of the university in Asia (and by extension in other developing regions of the world) in "today's world" is almost exclusively on how the university should produce more specialized knowledge rather than on how the university as a social institution, could serve society more directly.

## Recommendations

The university is in a unique position to contribute to the effort to harness the power of information and communication technologies for development, as we have seen. However, there are a number of obstacles to be overcome. What is heartening is that these obstacles have now been identified and their root causes analyzed. Here is a set of recommendations so that the university play a rightful role in ICT4D, especially in the context of Asia.

*1. There should be an interdisciplinary graduate degree program on IT and Society or ICT for Development.*

This is perhaps a *sine qua non* for the involvement of the university. Without such a program to function as a magnet for faculty members from diverse disciplines so that they could work together and harness the potential of the graduate students, the involvement of the university would be piecemeal at best. The degree program is a key contribution of the university in many ways, viz. teaching and learning, research and outreach. Students will learn about the latest theories and case studies, as well as interact with the faculty. The faculty have the opportunities to meet with members of the both the government and NGO. This is made possible by the fact that the degree program will have a permanent office and a status as an organization within the university. Since application of research on policy matters is best conducted in the context of teaching and learning (because of the interaction and the networking), the degree program is indeed crucial.

*2. A research center should also be set up within the university, and works closely with the degree program.*

The research center will work closely with the degree program. In fact the two could be housed together under the same organization, and it works better that way. The purpose of having the research center is to undertake high-quality interdisciplinary research on ICT4D and IT in society in various aspects. The center will provide a forum for experts from various fields, such as law, sociology, anthropology, medicine, philosophy, etc. to learn from their colleagues and to join forces in common projects. Graduate students will work as research assistants, which will give them invaluable experiences.

*3. The University should have a more flexible policy regarding interdisciplinary work.*

One of the complaints heard most often during the interviews is that the university does not have a flexible policy in personnel administration. This effectively dissuades those who might be interested in working in these kinds of projects, for they think they might gain nothing in terms of academic promotion or other kinds of

recognition. Furthermore, the organizational structure of the university also needs to be more flexible. This means that it should be easier to set up and dissolve agencies within the university. Degree programs that do not prove to be viable or responsive enough to the changing world should be reviewed and dissolved. This, however, should not be taken to mean that programs that are not usually commercially viable, such as ones in ancient languages or history, should be dissolved. On the contrary, these programs are essential in today's world which is in need of alternative visions that are available through these programs. It should be easier for faculty members to work either in related departments as joint professors. If the degree program on ICT4D is actually set up, professors from various disciplines related to the topic who come to work with the program should be given full recognition for their time and effort there. This does not mean that the faculty abandon their traditional works in their home department, but it should be realized that working in this way in fact does strengthen the faculty's own home base.

*4. The university should provide more funding for the research group on ICT4D.*

Funding for research is essential. Instead of relying solely on the fees provided by students in the degree program, which will be used up entirely in the cost of running the program itself, the university should provide a substantial amount of funding to the research center on ICT4D so that it can perform its stated functions effectively. The center is also under obligation to search for funding from outside, and the university could match any amount obtained from outside with its own. Managing the fund should be left at the discretion of the center and the degree program itself, which is already under monitoring by outside auditing firms or the outside donor.

*5. Public organizations such as NECTEC and MICT in Thailand and their counterparts in other countries should recognize the values of close relationship with the university as an institution and not only with the individual faculty members within the university.*

These organizations have realized the values of individual faculty for a long time, but they have yet to appreciate the contributions that universities could contribute as social units. What this actually means is that, instead of contracting faculty members on an individual basis, these organizations stand to reap greater benefits through working with the university as a whole organization. An assumption underlying this recommendation is that individual faculty members, when they work with public organizations such as NECTEC, usually do so as if they were a NECTEC employee. The university to which the faculty belongs usually does not gain any advantage through the arrangement. On the contrary, NECTEC itself could stand to benefit more if the university itself becomes engaged with it and puts NECTEC's agenda to be one of their own.

What this works in concrete terms is this. Suppose NECTEC or the MICT would like to pursue a project, such as one aiming at empowering rural villagers so that they integrate ICT with their own agenda and values. Naturally a project like this involves a



large variety of academic disciplines, and not only the technical ones that the people at NECTEC are good at. NECTEC might try to identify people who could help them realize the task and some of them might be in the university. Instead of contacting the faculty members directly, NECTEC could contact the university as a unit, and if the university has as its agenda collaboration with outside organizations then a synergy is created. NECTEC gains more than it bargains for, as the university is more than capable of identifying people who would be good assets for the project. Furthermore, if the university adopts the project to be their own also, then it could harness its relatively vast resources, including students, to the project too. What the university will undoubtedly gain through this relationship is an experience of working with research organization and getting involved directly in the field, and since NECTEC is part of the government the university will have a direct input on how policy is formulated and implemented. All this will be of tremendous value to the students as well as to faculty members.

*6. Donors should fund research aiming at analyzing the organizational structure of the university to find out how well it reflects knowledge organization, as well as one that recommends how the university should reorganize and reengineer itself.*

What international donors such as the IDRC or others should be doing is to put on their agenda projects aiming at understanding comprehensively the organizational structure of the university in the region and providing recommendations on how the structure should be revised or perhaps revamped in order for the university to become a more potent force in development. This, to admit, is rather difficult to achieve, as universities typically are very conservative organizations and do not want to change the very way they do their businesses at all. What individual faculty members do is one thing, but the way the university is structured and run is completely another matter. Individual faculty members may be very innovative; some may come up with brilliant ideas on a variety of issues, but when the spotlight of research is turned on the university, there seems to be an eerie silence. However, as we have seen throughout the chapter, one of the biggest obstacles is how the university is structured and how it has become a behemoth that is very difficult to move around. Without starting at finding ways to solve this problem, it is quite unlikely that university can contribute anything substantial as a social unit except for turning out graduates.