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A Response to "A Dialogue on ICTs, Human Development, Growth and Poverty Reduction"

Essay by Onno Purbo, September 16, 2009 in response to A Dialogue on ICTs, Human Development, Growth, and Poverty Reduction

Subtle Strategies in Unleashing Community's Inner Capacity

Personally, I admire the power of universal access, economic and social services, openness, human development and innovation. I believe in it. I've witnessed its power when unleashed. It surely will be the key enablers to transform the society into a knowledge-based society.

Unfortunately, in practice in the grassroots, a knowledge-based society is not about the concepts or terms “universal access”, “openness”, and “innovation”. It is more about *how* to create a movement within the society / community to get universal access, to embed openness in a culture, to help innovation flourish among the 240 million Indonesians. Unlike most western countries, we Indonesians cannot rely on the government too heavily. Create a self-financed, sustainable, self-propelled movement within such large number of people with minimal support from the government is an art in itself.

Being an activist with no funding, I am very much biased in most of my activities. All strategic actions aim for maximizing the bang for the buck. Trying to provide benefits to as many people / communities at the lowest possible overhead cost (or no cost if possible) and to facilitate the transformation of 240 million Indonesians into information / knowledge producers is a stepping stone towards a knowledge-based society. I found the critical lower level keywords would be:

• Self-finance, Sustainable
• Empowerment, Education

In short, keeping in mind the minimal government role the need to self-finance, some of our main strategies would be around education and awareness, for example:

• Conventional and Electronic Media will buy “good” and “inspiring” stories. This exposure helps in disseminating and convincing many Indonesians to join in. It is key for the snowball effect needed to create the mass or the “economic scale if you like”.
• Encouraging students / people to become knowledge / information producers – the simplest form would be books / blogs or even help in answering questions in forum / mailing lists. Availability of abundant knowledge in local language would be the fundamental key to be able to lift off.
• As more people want to gain more knowledge, self-finance education / awareness processes funded by the communities themselves grow in importance. Self-finance is key in sustaining the process for a long-term movement.
• Self-finance movement. As the community / people believe in it, they will voluntarily, with no external pressure, invest their time and money into the movement. Thus, a self-finance sustainable movement will be guaranteed.

The downside:

• It takes years, perhaps more than 10 years, to see the results.
• It requires the dedication of committed informal community leaders.

Some of the main field experiences :

• One of my favorite stories is the liberation of the 2.4GHz band in Indonesia. It is a 10++ year process. A separate paper on the story of the 2.4GHz liberation has been written.
• In 2008, the open source activists and the Indonesian ministry of research and technology provided free e-books on open source ICT education into the Indonesian education system. We hope to see more Indonesians to use open source software and save US$300 million / year to buy proprietary software. A video interview of Onno W. Purbo by Gurumurthy will be provided.
• Internet Sehat (Healthy Internet) has been promoted by ICT Watch, such as Donny B.U., for the last 4-5 years. It is now becoming accepted jargon and part of the movement in Indonesian ICT / Internet activities.
• ICT for Women (Perempuan Melek IT in Indonesian) has been promoted by my wife (Nurlina Purbo) since early 2008. It is a simple approach for carrying several laptops visiting many neighborhoods and running 3 days of free demos for mother / women. The response is unbelievable - there is lots of demand for such simple activities, as mothers are the key for children's education. Mothers need the ICT / PC skills to teach their children as the kids received it in their school. The approach is captured and published by MetroTV e-livestyle talkshows and many written media / newspapers, creating more snowball effects. Snapshot of pictures and video on this will be provided.

Some of the upcoming strategic movements would be:

• Community-based Internet Telephone. It is currently funded through ISIF. It has strengthen the main Indonesian softswitch VoIP server and the software. All can be downloaded from http://www.briker.org and http://www.voiprakyat.or.id. I hope to see the transformation of telephony infrastructure in the upcoming years.

People's Power on The Liberation of 2.4GHz band

THE CONTEXT

This is a more than one and a half decade of struggle to seek low cost broadband (>1Mbps) Internet access in Indonesia, starting in 1993. Low cost broadband Internet access is everyone's dream. Furthermore, free telephony access will be the next dream.

In the past before the year 2000:
- 64Kbps leased line via chopper cable was priced at US$400 / month.
- Frequency license for 2.4GHz was US$2000 / year / link.
- Internet was popular as it was introduced to public in 1995.
- But not many people knew how build the low cost broadband Internet access.

Thus, there are two (2) main problems
- Wireless network would be a logical alternative. Unfortunately, the frequency license was too expensive.
- Spreading the know-how on how to build low-cost broadband Internet access.

The final objectives
- Unlicensed wireless infrastructure.
- Self-finance by the communities as we cannot rely on the government / public infrastructure.

EARLY ATTEMPTS

In the early days, 1993-1998, several attempts for low cost Internet access were tried, such as,
- Starting in early 1992, packet radio network in 150MHz at 1200bps were used without frequency license. It connected a couple of dozen educational institutions. It created a hundred early TCP/IP techies in Indonesia.
- Around 1996, Institute of Technology in Bandung (ITB) received a VSAT connection via JCSAT & WIDE Project in Japan at 1.5Mbps. It was the highest speed Internet connection in Indonesia at that time. It pushed the need for high speed local access.
- From 1996-1998, Karlbridge from the US running at 2Mbps using 915MHz was illegally deployed. Several big universities were connected. Note that 915MHz is the cellular frequency in Indonesia.
- In 1998, several attempts at seizing the Karlbridge equipment were done by the military / national force. Onno W. Purbo, the man behind all the Karlbridge deploment, was called by the Directorate General Post & Telecommunication. Jail was a close possibility for Onno W. Purbo, but finally an agreement was reached on moving to a different frequency band.

CHANGE OF FIGHTING STRATEGIES.
- Around 1998, we moved the broadband links to 2.4GHz, using early Karlbridge equipment running at 2Mbps at a cost of US$1000 / Karlbridge. Again, without any license as that cost US$2000 / link / year.
- The rebel needs to change their battle strategies. Guerrilla tactics via mass illegal use of the frequency would be more difficult to put down.
- Starting around 1998, with the Computer Network Research Group at ITB, we wrote books and articles on how to build low-cost broadband Internet access. A lot of invitations to give demos, workshops, etc. since then were sponsored by vendors such as Corexindo and Planet Indonesia, and we have worked closely with Michael Sunggiardi in organizing wireless roadshows in many cities.
- The technology is no longer confined in education and research network environment. It was let loose into the public! Lots of early cybercafes, ISPs, and corporate networks in Indonesia were adopting the low cost broadband Wireless access at 2.4GHz.

THE WAR: PEOPLE vs. POWER.
- As lots of people started to illegally use the 2.4GHz, Indonesians began to buy the idea of low-cost Internet access using wireless access.
- In 1999, a significant amount of sweeping by police for illegal 2.4GHz use became apparent. Many people decide to bribe the police (many have to do monthly bribes) rather than lose their equipment. Thus, it became a money generating source for the Indonesian police...
- In 2000, Onno W. Purbo was the advisor to the Directorate General of Post and Telecommunication. But after seeing a lot of his comrade's equipment seized, he submitted a letter to quit and resolved never to step into the DG Office until the problem was resolved. He did not return to the DG office for the next five years.
- Problems were created for the DG as they had to face the communities in open public space outside their office, which is very dangerous.
- More workshops, seminars, media articles etc. were done at a rate of 2-3 seminars or workshops per week, self-financed by Indonesians to fulfill their curiosity as media coverage increases.
- At that time, millions of Indonesian depends their access on 2.4GHz.
- The War over access became apparent as power vs. people.

INTERNATIONAL PRESSURE: THE STRATEGIC MOVE BY IDRC
- In 2003, the first World Summit on Information Society (WSIS), IDRC and CERN invited Onno W. Purbo to participate and give talk at WSIS.
- In 2003-2005, a significant number of invitations were funded by IDRC to Onno W. Purbo to give workshops & talk in South Africa, Harvard, Bhutan, Canada, Malaysia, Cambodia, Laos, etc.

- In 2005, the second WSIS, IDRC again invited Onno W. Purbo.
- All international activities were well reported in the Indonesian media, especially on detik.com, the main Indonesian on-line media site. This created a strong image that "International communities are acknowledging the practical Indonesian way in getting low-cost broadband access".
- This consequently created a huge pressure in the Indonesian public towards the Indonesian government.

FINALLY
By the end of 2004, the pressure within the country especially with the help by IDRC and international communities became too high.

ICT IS A TOOL, EDUCATION IS THE KEY

ABSTRACT

Almost everyone, especially in remote urban, rural or villages, will likely dream of a better life. Few are willing to live in limited conditions, so one will likely to struggle to exit such unfortunate situations.

In this position paper, based on 20 years of field experience with very little funding, I would like to propose that a self-financing and sustainable ICT4D processes may be possible if ICT is tuned to suit people's / community needs. As one buys the idea that certain ways of ICT usage will provide a better life, one will be more likely to invest one's money in ICT and and struggle to get a better life. This in turn will create a slow self-finance and sustainable ICT4D process that transforms the society into a knowledge-based society.

In the transformation process, ICT is not the key component. Awareness, informal meetings, discussions, workshops, seminars, mailing list discussions and sometimes even chatting or Facebook groups are actually the key in the transformation process. In short,

"ICT is only a Tool. Education is the key."

Unfortunately, it is an art to be able to convince and create an awareness for 200 million people at low cost and very minimal funding. Media, books, articles plays in important role in the process. We will look at a glimpse on the strategies based on 20 years experience in trying to transform the Indonesian people into a knowledge-based society.

A GLIMPSE ON THE EXPERIENCES

Sharing ideas is fairly common on the Internet. Mailing list, Web forum, even fairly simple instant message chatting are commonly used by Indonesian Internet users. This type of communication mode is key in conveying and spreading an idea into the masses. "Word of mouth" is powerful on the Indonesian Internet.

Having seen approximately 1000 e-mails / day from 200+ mailing lists in the last 15+ years, I believe the Indonesian is basically looking for simple solutions of:
- Low cost Internet access
- Low cost, or if possible free, telephone calls

In terms of ICT infrastructure, that is basically the bottom line of what Indonesia needs to transform into a knowledge-based society.

Crystallized from thousands of e-mail discussions and trial among the ICT activities in the past 15+ years, the simple solutions are basically,

- Neighborhood Network: an community based computer network in a neighborhood. It is basically similar to a cybercafe, but running the LAN cable to its surrounding houses to connect the whole neighborhood. Using this solution today in 2009, one may access the Internet for as low as US$2-5 / month for unlimited Internet access. Investment per node would be fairly reasonable at around US$30-40 per subscriber. Such technology is described in detail in http://opensource.telkomspeedy.com/wiki in Teknologi RT/RW-net.

- Wokbolic: among many invention made by the Indonesian to be able to create a large computer network at low cost. Wokbolic or Parabolic Wok antenna is the most fascinating invention by Mr. Gunadi (A.K.A. e-goen) in Purwakarta, about 100 km from Jakarta. Using a simple Wok, we can connect a neighborhood in the range of 3-5 km radius at broadband 11-54 Mbps speed in 2.4GHz band. Shown in the picture is Mr. Gunadi during trial of his invention. Detailed knowledge on how to build such device is described in http://opensource.telkomspeedy.com/wiki/ in Wajanbolic e-goen section.

- Internet Telephony: the ability to make free calls is a dream for most Indonesians. A simple demonstration of how to make a call using a cellphonTe without SIM card to computers as well as normal phone is very inspiring to most Indonesians. This is possible by using Session Initiation Protocol (SIP) based Internet Telephony as demonstrated in VoIP Rakyat http://www.voiprakyat.or.id as well as its open source Asterisk-based softswitch CD at http://www.briker.org. This activities have been led by Anton Raharja.

- Free Open Source Software (FOSS). Ability to be able to develop local software Industries will be significantly enhanced by adopting open source software. A significant movement has grown in the past 2-3 years. Some notes on the Indonesian open source software movement are as follows:
- Indonesia Goes Open Source Summit II 2008. 15 ministries signed a commitment to migrate into Open Source.
- 28 October 2008: supported by the Ministry of Research & Technology, an e-book for FOSS ICT Class in Indonesian high schools was submitted to the Ministry of Education and can be downloaded for free from http://opensource.telkomspeedy.com/bse/
- February 2009: http://sourceforge.telkomspeedy.com is developed to provide a platform for Indonesian open source software developers to interact with each other for the first time.
- 20 May 2009: we hope to see the submission of more open source ICT e-books for junior high schools and vocational schools. Such movement could convert about 10 million Indonesian high school students into open source users and developers.

SUMMARY OF THE MAIN STRATEGIES

- Awareness through Media. Media is the key and most efficient in creating awareness to large masses on passing the needed practical know-how. Several media of interest includes:
- Television. It is one of the most influential media. Shown in the figure, MetroTV news channel in e-livestyle program shows in detail how to build a simple wokbolic. In this session, the phone calls and e-mail traffic to the station were significantly raised.



- Newspaper / Magazine. Similar to television, newspaper and magazine pushes further the idea that it is possible to improve one's life using simple ICT technologies.
- Books / e-books. One major drawback of Television, Newspaper and Magazines is that they may not be able to provide a great amount of detail or how-to on tips and tricks of the ICT implementation. Books play a major role in conveying the detail of ICT technologies to the masses. Unfortunately, finding a good and dedicated ICT writer is very difficult in Indonesia. Strategies to encourage people to become writers must be found.
- Mailing list discussions. Most media, such as television, newspaper, and books, are one-way communication media. It is unfortunately very easy to get the wrong perception on an issue. Thus, consultations and discussions are definitely needed in most cases. Today, Indonesians may be consuming large chunk of bandwidth at yahoogroups.com, googlegroups.com and kaskus.us with thousands of forums and discussion groups.
- Blogs and Wiki. The ability of Indonesians on the Web to write is very much boosted by Blogs and Wiki. Today, there are more than 300,000 Indonesian blogs, says Enda Nasution (the Father of Indonesian bloggers). Furthermore, the Wikipedia Indonesian Chapter has been recently formed to strengthen the Indonesian Wikipedia communities. In addition, there are several other wiki such as http://wiki.detikinet.com and http://opensource.telkomspeedy.com/wiki/ are very active in providing local Wiki content to the communities.
- Authors. Authors are key in transforming Indonesia into a knowledge-based society. Authors of books, e-books, blogs, wiki are the key in translating, customizing, and delivering the abundant ICT knowledge on the Internet to local Indonesians in cities as well as remote. Blogs and Wiki are paramount in creating authors that write the needed books / e-books for the Indonesian. Several Indonesian blogs are now printed into books.

SUMMARY

- To see a knowledge-based society in Indonesia is the ultimate dream.
- The key infrastructure to transform Indonesia into a knowledge-based society would be (1) low cost Internet access and (2) low cost, or if possible free, telephone calls.
- Neighborhood networks, wokbolic, Internet telephony, and the adoption of FOSS are some examples of the key ICT technologies used.
- In the transformation process towards a knowledge-based society, ICT is only a tool. Education is the main key. Knowledge producers & knowledge sharing are crucial in the awareness process.
- The existence of local authors is important in generating knowledge in local languages. Blogs and wikis encourages local authors to write and share their knowledge.
- Media is crucial and very efficient in creating awareness to large masses on passing the needed practical know-how.

All Access Essays

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