

**DISCUSSION NOTES**

QUESTIONS AND ANSWERS

9:30	<p><i>“Decentralized Domestic Wastewater in Nakhon Ratchasima Municipality, Thailand” by Mrs. Kanokwan Wannasook, Nakhon Ratchasima Municipality, Thailand</i></p> <p><u>Questions and Answers:</u></p> <p><b>Ms. Kanokwan:</b> Ms. Kanokwan confirmed that total construction cost for 7 systems is 20 million baht.</p> <p><b>Prof. Okada:</b> Thank you very much for your interesting presentation. This is a workshop for decentralized wastewater treatment plants. But as long as I understand based on your presentation, 7 decentralized wastewater treatment facilities constructed in this region were not so successful. So, why do you introduce decentralized systems in this small area?</p> <p><b>Ms. Kanokwan:</b> 80% of wastewater from municipality is treated by central treatment plant but the remaining 20% is not treated, mostly from communities living along the river. Because the area is hilly land, there is no choice other than decentralized systems.</p> <p><b>Mr. Kuyama:</b> You said that operation cost is 20,000 baht/system per month, but who paid? Did you collect the fee from the households or it is paid by municipality?</p> <p><b>Ms. Kanokwan:</b> The municipality paid for the operation and maintenance costs.</p> <p><b>Mr. Kuyama:</b> So you don't collect the fee from households?</p> <p><b>Ms. Kanokwan:</b> No, we don't.</p> <p><i>“Introduction of Decentralized Domestic Wastewater Management System in Indonesia” by Mr. Albert Reinaldo , Director of Environmental Sanitation, Directorate General of Human Settlements, Ministry of Public Works Indonesia</i></p>
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**Prof. Okada:**

Thank you very much for your interesting presentation. I have 2 simple questions. The first one is how much volume of wastewater you are designing for SANIMAS system at household level. I could not see the details for your slide number 29. My second question is how to decide the capacity/size of the SANIMAS system?

**Mr. Albert :**

The capacity is based on how many households are going to build...usually we build about 20m<sup>3</sup>, and can be bigger, depending on how many households want to connect to the piped system.

**Prof. Okada:**

Yes, for example, the minimum size would be 200 people. These 200 people are discharging their wastewater, including greywater to your SANIMAS. Then the volume of wastewater would be how much?

**Mr. Hamzah Harun Al Rasyid:**

We use 100 liters per capita for designing of SANIMAS..

**Prof.Okada:**

Ok. 100liter per capita is currently smaller than country like Japan, which is about 250l/capita. Then, my question is your living standard and your people lives are getting better, then people will discharge more and more wastewater. So what happen to your SANIMAS in that case? Because too much wastewater in the near future coming to SANIMAS, and its capacity maybe over in the near future.

**Mr. Albert :**

At the moment, the capacity is still acceptable. If the capacity is overloaded, then we have to build another SANIMAS. But until now the capacity is still small. We plan to build SANIMAS connected to the sewerage system.

**Prof. Okada:**

So in that sense SANIMAS is a kind of tentative wastewater treatment plant in your country. In the future, most of SANIMAS is going to discharge into big sewage pipelines, and becoming more centralized. Why don't you think about making decentralized system become more and more efficient?

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**Mr. Albert:**

Because we have a limited area. For example, in Jakarta, we plan to build 14 decentralized wastewater treatment plants in Zone 1 under JICA. So, for Jakarta, it is possible to build SANIMAS in many places. Our consultants will check the influent and effluent quality. Most of SANIMAS could meet standards in term of BOD, just BOD, not other parameters.

**Mr. Kuyama:**

I have 2 questions. One is how much the cost for operation, and who paid? Can you collect the fee from SANIMAS users or community people? And how much? The second question is according to your presentation, 82% of SANIMAS is now under good working conditions. How about the other 18%? What is the reason why you don't say this is good? What is the reason for the bad condition?

**Mr. Albert:**

People who want to use communal toilets must pay for the fee every month, usually 400,000 Rp per month. And the other question relates to why 18% of SANIMAS are not in good condition. The reason is that people build their own toilet. So the communal toilets will not be used anymore. The other reason is the operation and maintenance cost is high compared to their income. Also, although people can give the land for building SANIMAS but the land price is increasing so they don't want to give their land anymore, and want to get their land back. There are also many other reasons.

People change their mind to use private toilets rather than communal toilets. That is the reason why some of communal toilets are not used anymore.

**Dr. Wilasinee:**

You give a really good relationships among central, local and community. The central government is responsible for construction costs, local government is responsible for operation and maintenance costs and then, community will take care of the system. But it seems that we still have problems. Local government still has to support or provide subsidy for OM costs after 1 year, as you said.

**Mr. Albert:**

We, Ministry of Public Works as the government side, have responsibility to pay for OM cost, according to the 2004 regulation. It stated that sanitation is the responsibility of local government....because of the socialization of the

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	<p>problem.... we still try to increase the willingness to pay of people...</p> <p><b>Dr. Bao:</b> As you have already known that one of the big problems emerging from on-site sanitation systems is how to manage its sludge. So how do you handle the sludge generated from SANIMAS? And WHO takes this responsibility?</p> <p><b>Mr. Albert:</b> Local government has responsibility to collect and treat this sludge. Desludging is done every 2 years. However, in reality, they often omit, so community often has to pay for the charge of sludge emptying, it costs 200,000 Rp per one time (1 tank)</p> <p><i>“Introduction of SANIMAS” by Mr. Hamzah Harun Al Rasyid B.E.S.T, Indonesia</i></p> <p><u>Questions and Answers:</u></p> <p><b>Dr. Hoa:</b> How to promote or attract people to use or to change sanitation habits? Before SANIMAS, they often discharge wastewater to river for example? After SANIMAS, they are asked to use toilet?</p> <p><b>Mr. Hamzah Harun Al Rasyid:</b> It is natural that people always want something or to make better. Although it is tough from the beginning...Actually they want to make life get better. Then we show them good examples. If they are aware of that and want better sanitation...this is a process of dynamic discussion...OK, you want a better one, then what should I do, what should you do, what should I and you contribute, etc. dialogue...this is the key word.</p> <p><b>Mr. Kuyama:</b> I would like to ask you one question. I think in community-based sanitation, facilitator is the key point. Because normal community people do not have knowledge and experience. But facilitators will assist to decide what should be constructed, and how to operate it. So what kind of people you should become facilitators? And also is there any governmental support to facilitators?</p> <p><b>Mr. Hamzah Harun Al Rasyid:</b> First, there are 2 facilitators assisting now for SANIMAS, who have social</p>
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	<p>backgrounds, and also technical backgrounds. Both of them have to cooperate together. I think they should have communication skills and truthful. The trust is important. Technical skills are very easy, but social skills/engineering is the most difficult part, because they are managing interests. Interests of people who want better toilets, etc. We need to find one people who can facilitate these interests. Then we train these people. The government will provide money to train these facilitators.</p> <p><b>Mr. Kuyama:</b> What kind of people you select to become a facilitator? Did you select from the municipality or community?</p> <p><b>Mr. Hamzah Harun Al Rasyid:</b> Social person from the community, but technical person from the local government.</p> <p><b>Prof. Okada:</b> In Japan, rural people have to prepare their own Johkasou system, paying a lot of money. But city people have big sewerage system which is totally subsidized by the government. So it may be unfair.</p> <p><b>Mr. Hamzah Harun Al Rasyid:</b> Maybe here also. Poor people pay more for the water than rich people.</p>
10:20	Coffee Break
10:45	<p><i>“Issues in Urban Sewerage and Wastewater Treatment in Vietnam” by Ms. Tran Thi Ngoc Linh, Project Coordinator, Administration of Technical Infrastructure, Ministry of Construction – Vietnam.</i></p> <p><u>Questions and Answers:</u></p> <p><b>Mr. Kuyama:</b> I would like to ask you about the detail of fee collection. You mentioned about 2 types of tariff. One is sewerage tariff and another one is environmental protection fee. What is the different between them?</p> <p><b>Ms. Linh:</b> Any people who use water have to pay for water tariff to the company who provide the service. This tariff includes 10% of wastewater fee (compared to water use fee before taxed).</p>

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**Dr. Hoa:**

I would like to explain more. Wastewater collection fee is collection from water fee, and about 10% depending on the city. Meanwhile, environmental protection fee normally applied to the companies, who discharge wastewater and solid waste.

**Prof. Okada:**

You mentioned that OM cost for sewerage system is not covered yet. I understand. The basic idea in your country is that initial investment will be paid by the government and OM costs should be paid by consumers. Is that right?

**Ms. Linh:**

At the moment, OM costs are partially covered by consumers. But the basic idea is that all OM costs should be covered by consumers.

*“Technology and Management Situation of Decentralized Domestic Wastewater in Vietnam” by Dr. Tran Thi Hien Hoa & Dr. Nguyen Viet Anh, Institute of Environmental Science and Engineering (IESE), National University of Civil Engineering (NUCE).*

Questions and Answers:

**Dr. Wilasinee:**

Thank you very much for your good presentation. I would like to ask you 2 questions. First, you mentioned about effluent standard for outside service area of wastewater treatment plant and small flow. Could you please explain more what does it mean?...People who are not connected to sewerage have to treat by themselves to keep BOD below 30mg/l or 50mg/l depending on their area. Is this right?

**Dr. Hoa:**

Thank you for your question. Mentioned about wastewater from private households, in Vietnam most of 90% of wastewater is untreated, and about 10% is treated by centralised wastewater treatment plant. Up to now, we have not yet collect data on how many percentage of wastewater has been treated by decentralised wastewater treatment plant. We have effluent standards for both decentralised (either not connected to sewerage system or small flows) and centralised wastewater treatment plants.

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	<p><b>Dr. Wilasinee:</b> So it means that effluent standard for decentralised wastewater is applied for 90% of wastewater generated in your country? How about small flows?</p> <p><b>Dr. Hoa:</b> It is less than 1,000 m<sup>3</sup>/day.</p> <p><b>Mr. Hamzah Harun Al Rasyid:</b> I saw in your presentation a picture about filter. So if there is some clogging, then how to clean this anaerobic filter. Because SANIMAS is a community-based system. So how to train people and pursue people's willing to clean the filter?</p> <p><b>Dr. Hoa:</b> Although this filter is easy to take out and clean. But I think it is also one of the disadvantages of this system.</p> <p><b>Mr. Kuyama:</b> I saw the name of Johkasou in your list. Is it from Japan or Vietnam?</p> <p><b>Dr. Hoa:</b> Yes, it comes from Japan, mostly used for the wastewater from hospital. From 1995, we imported a Johkasou system and installed in our Institute as well.</p>
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