Complete Transcript

Workshop on Erdos Eco-Town Project

Jinma Hotel, Beijing

December 7, 2008 – Morning sesssion

【Moderator】: Today's seminar officially begins. First of all, Good morning everybody. Thank you all to get up so early. People who live here, and arrived last night took a long time to come from all over the world, so thank you. Our time is very tight, so I directly start our today's meeting agenda. We are meeting here today, first we would like to ask three key persons of our projects and meetings on behalf of the organizers to say a few words, first of all, I would like to invite our vice president of SEI Dr. Li Lailai.

Li lailai: Thank you. Good morning everyone. Today, we have the opportunity to sit together and conclude a project which spends at least ten millions YUAN and six years of running. For this urban ecological toilet project we make this end-of-project meeting. I would like to stress several aspects of this project, one is the reasons to start this project. Second, we want to see its results. Thirdly, we can have a look at our process. Why do we say that? Because, in fact, we all know, we are now facing a great challenge ,the capacity of the entire planet. The eco-toilet is actually an action to the challenge. Simply to say, we have to use it, we have no other choice. Secondly, if we look at the survey results which I received yesterday , 21% of users feel odor at home when we finished the eco-toilet project. The results of ecological toilets was not so good, so they converted back to the water flush toilets. 54% of households have no smell at all, and of course, some other odors from the toilet, or there are some smell from the bathroom, but 54% of households feel very satisfied. There is a question I find it very interesting: if we plant vegetables in the area of eco-station, and collect the waste as an fertilizer, weather you are willing to return to the dry-toilets? More

than 90% do not want to. Why is there such a result? I think the first aspect is right, we have to do it. Second, the results is not very ideal. When regarding SEI's home page, we want to put scientific knowledge into policy, and finally translate into action. This is the SEI's main focus. So during the process of operating our main work, there must be some problems. Otherwise there will not be a very good reason, no doubt about the reasons leading to such a result. In this today's meeting, we have such an opportunity to sit together to sum up this project, you can help us to do urban the ecological sanitation better. There is a key point in the Erdos eco town project, that is: Who are the owners? Who is the leader? I think this leader is having the final say, whether our have fully expressed their views from start to end in this process are involved? Then what are the reasons to achieve the project, to get a satisfactory result, which key points should be discussed. Many people have been in Stockholm, where there is an eco-city. Until the final agreement including several Government departments, there are total of seven topics: sanitation, electricity, waste treatment, greywater treatment, garbage collection. In the whole it has a total of seven stakeholders, including real estate developers, and finally the owners become one part. The negotiation process took about 4 years before the last agreement, from the first phase of construction, until the first phase of the user move in, it only take one year time. The results is all participating parties benefit form the project. The greatest beneficiary is the developer, because in the beginning the real estate prices as not been so high. Although it is outside the city of Stockholm, the price per square meter have been similar to the price in the city, which is a good example. Today, we have many successful examples, they are very reasonable, but there must be a reason to take action. Therefore, we have an opportunity today to discuss the process, this process is to transform scientific knowledge into policy, into action. This is the focus of our discussion. We hope that this discussion has a significant impact on our future work of SEI . I will thank you all in advance for your support and help.

【Moderator】: Next I would like to invite previous-Dongsheng EPA Secretary, now is the director of the Dongsheng projects Office, Miss Sun Lixia to say a few words.

SUN Li-xia: Thank you, I am very pleased to say that SEI and we are here to bring together experts, scholars, leaders who have been involved in the project from all over the world to do a summary analysis of our current project status and the future of ecological sanitation. To discuss the way forward. So, on behalf of the government I

am here to welcome all of you. During six years, our project implementation and operation, I think here we are all know about it. Why the ecological sanitation toilets change gradually to the present status? Most of the toilets changed back to water flush, this requires us to do a fundamental analysis and an autopsy on the system. So I hope all of you take advantage of this opportunity to give us a valuable thinking and ideas of our project, I hope you express some of the recommendations and opinions freely, so it can help our government and SEI to promote eco-san technologies all around the world. thank you very much.

【Moderator】： Thank you. This project is supported from the international side by the Swedish International Development Agency, and we are pleased that two representatives from Swedish embassy are here, including Anna Georg on behalf of the Swedish International Development Agency, I want to invite her to say a few words.

Anna :I think this is rather an improvised speech, and I am very pleased to be able to participate in the seminar. We support this project for many years. Why do we providing support for urban ecological sanitation? We feel that this is a very good project, will allow us to have a sustainable sanitataion. It is also very important to our future. It is an area, which in particular can help us to achieve sustainable development, to address the water shortage problems. In this areas China faces huge problems. At the same time we hope to continue to improve the ecological sanitation system in China, so that future generations can also benefit. We feel that this project is very interesting, and it is very important project. From the beginning, we talked about a project for research and development. Li also mentioned a very important point: we now want to have a closer look at our projects, our reasons for that? Our households, or whether our stakeholders, how they will look and implement this project? From this point there is that we can see that we as an integral part of the project to carry out a good result. We also know the very large scale of this project, we need to look at each of our owners Ye Hao, or stakeholders, and our responsibility. At the same time, this project has left a deep impression, for example, allow people to use dry toilets, especially in such a big city. This is a very good project, this is also the reason we support this project. We know we will face many problems and encountered in the middle of a lot of problems. Particularly when it comes to sustainable ecological sanitation, it is very important for China. I also hope that our

conference would allow for the ambitious the subject can produce a certain results, or of very good comments and suggestions. For us to solve urban problems is a very important solution. I hope that this seminar will have a good results, I also wish our seminars to be successful, but also look forward to very good discussions.

【Moderator】： PLease Give a brief introduction of yourself. I am Han guoyi, working at the Swedish International Environmental Research Institute. though I am not the main part of the members of this project, I very concerned about this project from the beginning .

Jenifer McConville： My name is Jenifer McConville, I am the project coordinator.

Arno Rosemarin： Good morning everyone, I am also from SEI, I was project manager for SEI.

Lee Lai Lai: I should be a part of the owners, because I was born in Baotou, so I has the close connection with Ordos.

Roshan Shrestha： I come from the United Nations-Habitat, I am also involved in this project, personally I am more interested in the ecological system. In fact, we have adopted the ecosystem in our family, my house, there are dry toilets , but it did not encounter any problems, so we have to discuss.

Madeleine Fogde： My name is Madeleine Fogde, I am the director of ecosanres projects. I am very pleased to be able to see so many people come here to share our experience and your knowledge. This seminar is very important outcome of the project, in fact for us in this study will make a comprehensive assessment and summary. Therefore, it is a very important seminar.

Anna: I come from the Swedish Embassy.

Zhu Qiang: My name is Zhu Qiang, I am a retired officer from 2003 to 2007. I was the project consultant.

Ron Sawyer： I was responsible for research work related projects. We have an ecological sanitation project in Mexico. We have a number of demonstration projects, this demonstration project also rely on the support of the SEI project.

Tony Clark： My name is Tony, I am councellor for trading & investment of the Swedish embassy, and Swedish center for environ technology. I have been to Ordos

three times, accompanied some ministers. but lso with some participants . I recently went to the place. In the past several years, I have actively track the project and am very pleased to be able to come here, because I have seen many times Mrs Sun. and discussed with her on this the project . Today, I am very happy to listen to all of your ideas, to see if in the future this project can be improved.

Hidenori Harada： I come from the University of Tokyo, I take charge of ecological projects, and for this projects I have are done the assessment in 2007. I am also very glad to see you.

Zhang Lijun: I come from Ordos Architectural Design Insitute, we are responsible for eco-project design.

Wang Qiang: I come from Dongsheng District, in 2006 began to participate in this project.

Shen zeru: I was the secretary of the owners, previously retired teachers.

Female: I come from Ordos, I am ecological community owners.

Man: Hello everyone, I'm from Dongsheng Project Office.

Female: Hello everyone, I'm from the Ordos ecological community representatives.

Jiang Pei-yuan: I come from the project investor.

Liu Mingda: Hello everyone, I am a Swedish environmental technology interns.

Wang Su-jing: I from clear water alliance, as one of the CNSS partners, we are very sorry not been able to participate in the Ordos project,i hope that through today's discussion we are able to learn more things.

Yu Ping: My name is Yu Ping, I'm from the Swedish embassy environmental technology center. Today I am very happy, that me and my colleagues came here, and we look forward to hear the outcomes of this seminar and discussion.

Zhang Wei-wei: My name is Wei-Wei Zhang, I was a SEI technical assistant.

Liu Zhong: My name is Liu Zhong, I am from Ordos Soil and Fertilizer Station. In this project, I was engaged in re-use of fertilizers.

He weijia: Good morning, everyone, I am a Beijing design company Zhongyuan Engineering Electrical and Mechanical Services designer. In 2007, during the

international ecological conference I visisted the project. I have been very concerned about such a project, and looking forward that such concept will be able to play a role in many projects and geographical areas. I also hope very much to draw experience from today's and tomorrow's meeting.

Chen Xiangyang: Hello everyone. My name is Chen Xiangyang. From the end of March this year, we have installed in Sweden Erdos Eco-town our ecological sanitation toilets. I am their agent. It has proofed good results. Unfortunately I came a bit late, Thank you.

REN Li-Na: Hello everybody, my name is Ren Lina, I am by the end of 2006 to early 2008 as a dry-composting toilets educator. Now I am also very concerned about this project and wish the success of the workshop.

HU Ai-bin: I am studying for Master degree in Beijing University of Science and Technology. I was involved in this project in 2007. I am very interested in the cause of the eco-sanitation system.

Cheng shikun: Since last year I started to participate in this project, we actually work in the Ordos compost work.

Attila: Good morning, I come from Hungary, last year I went to visit Ordos, The concept and this project is very interesting.

Man: I come from Beijing University of Aeronautics and Astronautics, In September 2009 I began to participate in the relevant work of transformation of the ventilation system.

Zhou Lv: I come from Environmental Science and Engineering,. From 2006 onwards, I have been involved in the project analysis and economic evaluation.

Lin Jiang: I am from Guangxi, where was the first ollaboration of China and Sweden to introduce ecological sanitation to China's technical staff. We successfully organized the First International Eco-Health Conference in Nanning in 2001. After which no less than more than 20 provinces and cities in China involved in the promotion in ecological sanitation, and have achieved very good results, including the earthquake in Sichuan. Guangxi’s experience and the products, are in at least more than 40 countries worldwide in use.

James GAO: I come from China CWA. today is a reflection on the project. I am moved, I hope the Chinese government at all levels also have this spirit. At the same time we do any eco-projects, it is not simply a technology project, and such as economics, as in many countries, political economy, If we do a systematic project, in considering the technology, we also need taking into account the social sciences.

SUN Li-xia: started in 2003 I have been involved in this project.. I am now the project manager, as well as Director of the Office, on behalf of the Government in the implementation of the promotion of this project, thank you.

Li zifu: I am a professor at Beijing University of Technology. From 2007, we have been involved in the latter part of the Ordos project, last year in cooperation with SEI , we are now China's ecological sanitation nodes s together with clean water Alliance China we are responsible for promotion of ecological sanitation. Thank you.

Ina Jurga: Good morning. I am an expert consultant on sanitation projects, I have to worked in China and I have been to several times oto Ordos. I am here today as a report of the meeting and the rappoteur.

Zhang Lingling: Hello everyone, My name is Ling-Ling Zhang, teacher at Beijing University of Technology. I did not participate in this project before, I am honored to be here today to listen to these experiences and lessons. I hope this can help future projects.

Peter: in September 2006 I visited the Ordos. I have also participated in the related work to improve this system. We need to understand our work, among them some experience and lessons learned, to sum up, how to improve them. I wish this seminar achieve success. I wish we could learn a lot, there are many projects, similar projects around the world are actually now in progress. And there are some very good opportunities for us to share.

Jin xin: Hello everyone, I am a doctoral student of University of Science and Technology Beijing, I have been involved in the project to improve the implementation of the construction in 2007. I went on-site for investigations, and I am very pleased to be here today to participate in this meeting.

【Moderator】： Again, thank you. Today we started a little late, but we are very efficient, let's open this meeting today. As thee organization of the meeting, we

want to achieve the purpose of the meeting: the exchange. Prior to this, I would simply say something, today and tomorrow will be two days, we have a workshop team. The team is including myself, Jennifer, Ina Jurga, and Dr. Zhang Lingling. During the opening of the symposium, Mrs Li has been in many ways talk about this, I'm here to say. The Ordos project, as we know, is in any sense, for the area of ecological sanitation a historic attempt. From its size, from its investment, from its international and domestic attention. Speaking, it is a historic attempt. By today, this system evidently can not be saved. But in the six years of experience, we have accumulated experience, learning and understanding of all aspects of the system. To preserved the experience of the system we have a value. That we are in the Ordos, in this look at this system again. There is a common learning, the first person trying to fly he most did not succeed, but today we have a well-developed aviation industry , which has become indispensable as part of our modern life. There are many examples: more than 2000 years ago, We chinese were the first one who would to launch rockets. And of course, he sacrificed his life for this cause. But today the future direction of the rocket has become the most crucial one extraterrestrial technology. Any one technology, especially a new technology, has such a process. In this sense, speaking of Ordos, we had six years of direct involvement which are very worthy to review and draw the lessons learned. And for local, domestic, and international experts in field to provide experience. This is the general speaking, we want to open this. We have a large background knowledge of people who attended the meeting, and this will sum up, learning aspects through an exchange of experience of the six years.

Why all of you were invited? All of us here, we do not to introduce you to this project, you have an understanding, because you were involved in the past six years on this project and devoted all the effort to the project . as manager, the ecological service station staff, as well as the staff of the MPO Dongsheng, as well as SEI project staff, but also advisers in different stages of this project, providing design, assistance, technical support, evaluation , etc., consultants and scholars. I personally welcome the project tenants representatives. And There are representatives from project builders, Daxing company

The second aspect, Why just you? It is precisely because we all represent our project. It is a very large, complex project also in all aspects of the number of stakeholders. We all devoted efforts to this project, so in this conference we want to hear

everyone's experiences. This discussion of them the results of this workshop will be refined to provide lessons learned in vision for our future,.

The specific objectives? There are two points, simply to say that there are two points. The first point is to make a systematic summary of our experiences over the past six years. Specifically, on the application of the dry-composting toilets in the city in several buildings, its applicability, its problems, its experience, the social aspect, its economic aspects, and institutaional cooperation . We will do a systematic review and summary. First, we have the lessons-learned. The second, in summarizing the basis, we are naturally enabled to see for the more long-term development, in order to better promote this concept in the world, for China's further development. Therefore, we want to provide advice for sustainable development and for the future of the eco-san projects. I wrote my PPT last night, then once again became aware of this problem. In Europe, we believe that it is worthwhile to promote the idea, because it is a more comprehensive concept, not only ecological sanitation. To a large extent Dongsheng is a trial in the dry system. If the dry-toilet system considered in a sustainable concept, I am afraid, we have to refine the process of summing up would be more in line with some of the requirements of sustainable development.

Then I want to talk how the meeting will be organized during the following two days. As I said earlier, we hope that this two-day seminar will discuss under a larger framework sustainable sanitation systems. I would simply say that, if we want to look at this. We are dealing with human excretion and treatment. As a system is concerned, in terms of a whole closed loop system, first of all you have a separation of this part, with separate parts, in this section. [PLEASE REFER TO PPT]. Naturally there will be two major factors to influence the system: On the one hand, what kind of technology, on the other hand, cultural and social factors. Wether or not the foundation of society accept it? Now this big circle, and we are now, after this separation, it is now to consider re-use. So that from this small circle to large circle, which is a system, there are health, there are environmental aspects, there are management, and the cultural and social context. We hope that all aspects are the basic elements and structure our two days on this project review and discussion. On this basis, we can see from the agenda, we will discuss five areas: one is the project objectives, the second it the discussion on its various technical aspects. We do not want to further discuss specific technical details, but through to capitalize on this

technology. After the feedback from the user's point of view, see the existence of strengths and weaknesses of this technology, and all aspects of the problem. Another (third) point, the social acceptance is also included. Fourth, we would like to reviewe and summarize the management of this project. Finally, because such a project involves the design, construction, there are aspects of construction, etc., throughout such a process, how to ensure quality of the environment? We mainly want to explore the environmental and economic point of view and give a summary of these areas. For each part, we want to to organize our discussion in this way: first, the facilitaors will have a introduction followed by background briefing. In the background we invite one or two main stakeholder / expert in this area to do give some of their key reviews and summaries. Then, on this basis, it is the main idea of this organization, that we have a participatory dialogue and discussion. I think it must be emphasized, that, especially from the beginning of this project, you were the residents of the project. The project management and experts sat together, and most of you listen to the experts, but this time I will definitely wish to emphasize that we must speak freely, your voice, your feelings and the feelings and are as important as the experts. For this dialogue and discussion we chose different forms, we sit together in the form of plenary, and as well - in different parts - the discussion should be grouped In general, we hope to achieve through these various forms the purpose, which is to collect the public views and the accumulated experiences of this project. This will achieve the goal of summing up the key experience. In each part of the seminar, we follow such a procedure. The next session is to begin with the first part of the workshop: the project objectives. In the afternoon, we will have two parts, that is, the technology systems and the user aspect. We will discuss the technical system after the lunch.. After tea break in the the afternoon, spent the time spent focused on the user-aspect, that is, the social acceptability. Tomorrow will discuss mainly two parts, one is the management of the project, another one is about the quality assurance from an economic and environmental perspective. These are the ideas of the objectives and organization of this two-day seminar. I need to emphasize that we would like to sum up many aspects. We can see from this two-day agenda is very full, I am well aware of the period of the past 6 years, each person has a lot of thinking, a lot of experience. We want be able to hear each person thoughts on this project, and because the time that we should speak clearly, try to be brief, and precise, so that can ensure effectivly within two days and this will be our success.

Li lailai: Chapter IX, I think there is a process that should spend a little more time for discussion. That is, the planning process. In addition to project objectives, technology, social acceptance, management and quality issues, the project planning process is also a very important part. In the ecosan project in Stockholm which has been successful, it has spent four years in the planning, so that the users were involved in this project Planning and making the decision. This is a crucial step, because this step was well done then the construction of the project was finished smoothly, the users could move into the residential area after only one year. This is what we have done and it is the most critical aspect of social development, maybe could be added to discuss about this aspect.

【Moderator】： Thank you. This is really a very important aspect. On the one hand as one part of the discussions on the project objectives it will involve, 'why to set such a goal'. In the following, the various aspects have to be considered, and we see in this part, if the planning involves problems. to agree with Lee, in pre-project planning, and in particular, how the stakeholders are involved in the planning process, is very worthy of discussion in details. We see the discussion for the project objectives, we can also make some comments in this regard Throughout the discussion, if one was able to Lee to come in just to say remember, we can also include it. Finally, in the part of the quality assurance , planning - I think- this is the first step, In this respect, we can also include this point Li has just mentioned into the discussion.

Now we can start to discuss the first aspect, that is, the project objectives. In this area of discussion, I would like to Jenifer, to do a general review about this project, stressing the objectives. Then Jenifer will highlight a number of key issues. Then we began to organize the planary.

Jenifer McConville: My name is Jenifer McConville, I will give you a very brief introduction, to describe how this project has developed. Each of us has been involved in the project. So we all already know how this project developed. The project is a very complex project, we are all aware of. It is not a simple technical solution, we need to take into account many elements, different systems, for example, we have water, faeces, urine in the separation system. In general, the more complex the project, the level for control will be lower. But we not only to take into account technology, but there is also how the user use these technologies. We have some requirements

such as buildings and government regulations. And there is the whole community and their acceptance level of his problems. We represent here the views of various stakeholders. We can also see through the composition, how complicated this project is. Now nothing can be very easily done. In this complex situation, to do what's right and which is wrong, this is not very possible. We have to consider the project process, we need to constantly improve, we should look at some of the things that can be derived. From this point of speaking, why are we doing this project? What is the goal of this project? In fact, We are the driving force behind this project. As for instance, we have such a concept of our ecological sanitation, and we need a more sustainable programs to address sanitaition problems. Ecological sanitation, not let the waste directly into the ocean, this system will eventually be able to make the waste treated in the processing center system, so that the waste can be reused. We can more efficiently use our resources, that is, we hope to be able to find a new solution that allows us to recycle the waste. This is our intention. And there is another consideration: the limited water resources on the planet. We need to save water, not only is the water washed the way. We hope to save water and at the same time can improve the quality of the environment. There are other points, but this is our driving force as a whole. We chose Ordos, because it is very dry. Because we know that, and they have a very good government organizations to support the project, we all feel that this project will be good. We can use this concept and achieve a lot, such as improved quality of the environment and save more water, especially when in dry Ordos. There will be benefits from this concept through the project, such we know how to better protect the environment. Therefore, we also want to do this project in China, even in the world it can be a model , for example, how to implement a sustainable sanitation system. The results we have today, does not seem like a success, and not what we have expected. But we can still use it as a case for analysis. During the time of our project proposal document, when we wrote it on paper, ithis is our goal: We can see that it consists of four parts, for example, we need to separate different elements, such as urine, faeces, and so on. This can effectively reduce pollution and be suitable for reuse. We have an eco-station, to support. We collect all these wastes, and then let them treated in the system of this project, rather than those that merely discharge waste into the city management system. We have adopted this project to establish a closed-loop system. The treatment of these wastes, and further use of it, such as compost, through this process results in a re-use cycle. This a pilot

project, a research & development project, which has lot of uncertain aspects, and that's why we need to explore the process. In our project proposal and through our objectives we hope that through this project we will raise public awareness and public acceptance, because people should be able to use dry toilets. People have this sense of a more environmentally acceptable way of health/ sanitation. There are a number of legal aspects, etc., such as legislation, as well as the financing to consider, so that the project could be feasible. Therefore, the integration of all these different aspects, I do not know what the future will be made to look like. This project is learning-by-doing, and we may eventually achieve environmental sustainability and improving, etc., but these are not clear at that time to set project goals. If we can achieve our goals, we learned through the course of a project. Our terms of this research was to be able to understand the use of dry toilets in multi-storey buildings, , it may be very good, it may not succeed. This is a very large project, we wrote throughout the course of a project many reports. For example, several postgraduates and doctoral student are involved in this project. We have a lot of things to learn, for example, how the ventilation system works? There are in multi-story buildings and how to construct dry toilets there. We should bear in mind that part of our goal, is, to test and to learn about those things. We have learnt a lot, and we are here today to learn more, about such a project. I think before we are doing the project, neither large or small, we should do a test. Today, we can make a discussion, if we were correct for such a system or not, but it must be seen in the whole extent, otherwise, you will not be able to learn its contents. We have example of tens of thousands of ecosan toilets in single home systems, which are completely different. I would like to sum up once again to everyone, we have achieved some of our goals, we can learn from the experiences. For the lessons learned, we also have to understand this concept in regard to the future sustainability. We now have four sets still in testing, but all other households replaced the dry toilet with a flush system. They had some problems, there were some things that were not perfect. We have tested this system for three years. And a system if not perfect, we might not use it. Of course, today we will do some discussion on this point, because the system is not perfect and inconvenient, the households refurbished to the flush system. Therefore, we also need to re-do some thinking, or do some planning to upgrade these systems, or consider now what kind of loss, moreover, how collect and the sewage system must be considered. We now actually have a system, and give it to be upgraded, and the assignment to go out, we

may in the future to transfer it to local operators, but also with some new systems to deal with these wastes, so we also need to consider some other. Some elements of the project are working now, for example, we have established a composting system. The purpose of our seminar, although we know there are a lot of problems, the issue is how to do such kind of projects in future. Today's seminar focusing on the dry-composting toilets and its original purpose will be discussed. If you want to address the problems or other ideas for this project, and so there are some doubt that we could come to our discussion. We have many experts here and they will be stay over the 2 days, so during dinner, tea break time, so if you have some ideas, how to update and improve this system, in fact, you can discuss with experts how and what kind of improvement and advice is needed. Our seminars, we have just discussed this project, What is the initial purpose, and then we actually need to do a summary, I have just summed up the inital objective of this project. We now have to review these project objectives, by asking ourselves some questions, highlight a number of key issues, and then give the planning of this project some thought.

We now have these objectives: Are these goals appropriate? Are they clear? We all can discuss about this. During the discussion, you can come back to these questions. Is the purpose of our project very clear? Weather all the people understood it right? In addition, the scope of the project, is it appropriate? For instance, we are still doing research on a single toilet and doing research on single-family systems. In addition, we have many families involved, and the whole system there, it will have to be thinking. Need to consider the choice for Erods is not right. is it appropriate or not to chose this place? Has the design been appropriate, this should be discussed. I also hope that our discussion will consider all people involved in the project For those families who moved into the eco-city, what were their purpose? Before they moved into it, what kind of expectations and vision of this project were relevant. Everyone can discuss these points. You, as residents, as experts, your participation in this project, what have been your objectives? What kind of ideas you had, what kind of expectations.

Zhu Qiang, who is a senior adviser to SEI, he would take a few minutes to give us his presentation about the project objectives.

Zhu Qiang: Good morning everyone. Thank you, fo giving me a chance to talk a little about the ecological sanitation projects and give some of my personal opinions.

from 2003 March to 2007 in September, I was employed as a consultant by the SEI project. In fact, Apart from consultancy work, I have also done a lot of specific technical work with the organization. So my remarks will also relates to these areas. The project began in 2003 until to the present has gone through seven years. In Erdos City, Dongsheng District Government, as well the eco-sanitation systems management station, Da xing development company, and SEI, has done a lot of work and made a very valuable experience, but I feel that our results should cause us concern. These efforts, from the building until the installation of eco-sanitation systems, as well as part of the operation, management, has achieved substantial results, and also made a lot of experience, lesson. According to the wishes of district residents, dry-type toilets had been replaced by the flush toilet. This shows that the test of dry toilet in the plot was unsuccessful. But I think this does not mean that the project is without any results. I think that the lessons learned from project implementation will be a very valuable asset for the further development of our future, or eco-sanitation systems, or a sustainable eco-sanitation systems, and that should be very valuable. I think it might have three main questions: one is my personal analysis of the failure of dry latrines in Erdos district. Secondly, what should we learn from the failure. The third question, that is my personal recommendation, whether we can get the concluded that large-scale residential application of this dry-composting toilets in cities and towns can not succeed from the project? This is I want to talk about.

First of all , the analysis of the failure of dry latrines in the district. The first reason, I personally think, there were some problems in the implementation of the project. Related to this issue, first of all, I think that SEI has not considered in the context the technical preparations are not in place. In the implementation of this construction and installation of the past, we lack the ecosan systems planning and design, or the edge of our implementation is implemented, while the design, or implement side, side research, while the design, such a program, I think it is inappropriate.

Second, the lack of adequate real test before the design for the implementation. The Problems during the project implementation, the construction and installation quality is very low, which I can cited many examples. At the site people would find these problems, for example, the installation quality of underground pipes, which all contribute to the residents expressed odor problem, as well as the row of fans, the installation of urinals. Gray water pipe was installed to be able to through the water

from the system by the spring of 2007. Of course, there are some other problems such as urine and gray water pipes freezing, blocking, and so on.

The third question, SEI project office and the government fail to timely coordinate and solve problems in the project. While our SEI project staffs in the field, founding a lot of issues, and also contacted the Dongsheng project office, but we do not have the opportunity to see the leaders of Dongsheng government, which is a very abnormal phenomenon. Therefore, a lot of problems were delayed. Not to say that you can not solve the technologly problems, but if there is no co-ordination , it can not be resolved. I just talked about specific issues during project implementation, the second question—is the enthusiasm of project participants, The first point is the attitude of tenants to dry toilets. Before occupancy, for the special elements of this project, they were not prepared for it beforehand. This elements, I think, consists of two aspects, one is that ist is a dry-type system, the second aspect, it is a pilot research project. There is no precedent example in the world, so users have the responsibility to participate in the pilot study, to improve with the management, etc. Also with the mindset, that the dry-type technology is a backward technology, the flushing system is an advanced technology. This concept not correct. The second one is other stakeholders's enthusiasm. the real estate developers and general real estate development did not receive the same benefits, not shared all the Government's commitment to implement. So developers should be said that there are a lot of grievances, we have seen developers, general manager of the time, with the. The only problem we are talking about this issue. Third, we do not have contact and access to the upper government, the central support. The degree of the coordination of attention, support and consideration by local governments dropped after 2006.

The second question I want to express, is my personal opinion. What kind of lessons can we learn from this project? The first issue is that we must follow the basic research, development, large-scale implementation procedures also for the ecological sanitation systems. These basic procedures, we did not follow well during the implementation process. In the project document it has been mentioned, that process can not be a linear system. On this I agree, but this linear system has the necessary links, which we have to go through, otherwise it is wrong. The second question is related (to ecosan) in cities and towns: how should we promote and choose such kinds of object? My personal feeling is now, under China's specific circumstances, we can

considered two kinds of people: one is no compliance in the implementation of the project before the toilet populations. We started this project under the aspect when the farmers houses in Dongsheng Office were demolished and they were given new settlements. These farmers, cause they don't have toilet before, may be more acceptable. But then, I personally do not know the reason, it later became a real estate development project. So this change, I think, is very negative. The second group of people which can be considered, under the conditions of cities and towns, are the people who have a strong environmental awareness, and we can starting our project from here. Third, the choice of project site, I think the first point should be considered are the areas where water flush system is difficult to reach in the context of urban development. At the beginning of our project ,the place was a remote area, but now it has become the center of the city, and in this case, it is difficult to maintain dry-type system for long-term operation. Second, the areas where high degree of agricultural development is near the project. The project even produced agricultural products, but they can not be fully applied. Third, in areas where they have water shortages. The fourth, where the local government has a strong will and policy of environmental protection, they should be responsible for the project effectively and should sustain coordination. Provide favorable policy environment for real estate developers and eco-system equipment manufacturers and encourage organic agriculture policy.

The third point, the following factors are very beneficial for the development and feasibility of dry toilets. First, technology development and improvements, such as architectural design with the eco-sanitation systems, it should be a unified design plan but we did not have this. if we can integrate planning and design, I think we can reduce the cost and material consumption. Second, as the technology matures, prices will continue to decrease. Third, we look at sites of soil, geology, terrain conditions, then decentralized wastewater treatment will have a major impact. Therefore, its a reasonable choice if the project will reduce the cost. The second point, I think we should take into account the development of a market for eco-system re-use products. Means that the demands of China's urban and rural for high-efficiency agriculture are increasing. Many areas of our country are now engaged in high-efficient agriculture. The ecological sanitation products are a very important condition to ensure efficient agriculture. Second, the market development for organic agricultural products. Thirdly, the current low price of water, in particular, and the very low sewage charges in this situation. I think it will be gradually changed in the future, then it is also

conducive to eco-sanitation systems, or the development of sustainable health systems. The very favorable third factor, the central government put forward the policy for cycle- economics, and there will be eco-sanitation systems, in the sustainable development, and the future development of health systems. Of course, this problem also requires local governments to have such awareness.

This are my three conclusions: the first one, I think the failure of project is a combination of factors including technical, project participants initiative and policies. Second, the Erdos eco-town projectis providing very valuable experiences and lessons and has important significance for the future development of ecological sanitation. Third, we can not say dry toilets are doomed to failure in urban areas. I believe that the ecological sanitation, or sustainable sanitation can be continued to develop under urban areas.

Arno Rosemarin: Good morning everyone. I would like to say, Jenifer and Professor Zhu have given us a lot information about what I wanted to say, they have mentioned a lot. I hope that we can all understand, that it is a large-scale project. In fact, is a very ambitious plan. At the beginning of the discussion, we at that time held a very negative attitude, saying that you can not do too large. They all try to convince me that we should do a big project, and if you want a particularly large project, the only one country where you can do such a big project, is China. We can at least learn a lot from the process of this project. In particular, we can know its advantages, disadvantages, many lessons can be learned. This is our original intention to do this project, we have 3,000 people involved, there is no other country with such a large project like Ordos. The government of Dongsheng district liked the original intention of this project idea very much. At higher level, for example, Dongsheng, as well as mayor of the city of Ordos, who gave us great support, they wanted to do this project, and also wanted to succeed. They have a supportive attitude until now, and that has not changed. We should take a closer look, we've got a lot of points. We know that Dongsheng should be a right place, because the local governments, they are well aware of the project's needs, they face water shortage problem as well as the environment problems. I would also like to talk about the background of the project, we may not realize that it is has not been a real estate project at the beginning ,the major target was to benefit farmers who were living in the area, to improve its environment. In particular, grazing pressure, as well as dust storms, etc in this place.,.

We targeted these people, as they can have a more gradual process of urbanization, the urbanization on the system point of view, such as a small garden buildings, etc., We have done a project like this, at other times,. Which has been a success. We would like to test in Dongsheng, so we installed 3000-4000 such dry toilet system, so this is a large-scale projects. We have visited Dongsheng in 2003, it was a very dirty, very bleak city, but if you go to the Ordos now, it likes like Shanghai., it has undergone tremendous changes during last five years. Why? The people's living standard rised and its core competitiveness has been improving. People began to accept modern residential patterns and lifestyles. Our project changed very quickly from a small real estate into a multi-storey building project with implementation of dry toilets.

As we begin to discuss the project with the Government, we were talking about 1-2, maybe four-story building. Later we saw that for the buildings different design came up. Because of course, it was real estate, and the process of urban real estate development is very fast as well. Then there were only four or five-story building,. The entire project until now is six years. During the six years, in Dongsheng area tremendous changes have taken place. Such a project is large-scale, were very much involved in a full range of projects. We have no much similar projects to learn it is very successful in Sweden, but only two in Germany, and we can not copy of the experience, we have to learn more before we can move forward growing. We had four mayors involved in the project, while they discuss it with us over and over again, we have to see where we can find our common ground, how can we reach consensus? These are our communication challenges. There are different stakeholders, for example the government, and we still have a lot of participants, such as builders, real estate companies, as well as local officials, etc., When we were doing this project, we did not know who will live in these residential buildings. At the same time we have a lot of training programs, as well as other government, as well as government officials. There will be residents living in the houses, and we gave them the necessary training. There are Dongsheng project team, as well as government officials, we have a lot of information exchange, communication, etc., but also a lot of work. The most interesting point, why it is an ambitious project, we did not realize : we have 55 acres, there are 2,500 such apartments. They were sold out very fast. Eco-dry systems, but also us and then Daxing, Meilon companies, there are some other, for example, to do this with our co-operation related to health facilities quickly started.

From the financing point of view, the Government is responsible for the major

financing, such as roads, municipal drinking water. The most interesting is to say, people spend money to buy a apartment 1000 Yuan/square meter, is now 4000 / square meter, while others are not because of dry latrines. This small magnitude of the real estate price an appreciation? This is a very interesting question. We can discuss why it became a flush toilet later, As well as its maintenance costs, SEI is responsible for monitoring. We will use the collected waste for the composting, we are responsible for such a monitoring. This is a brief introduction to our project. We would finally like to talk a bit about what we have learned, or what were the lessons From the beginning to the end, because the whole process of building our project, urbanization has developed rapidly, the government started trying to select the farmers who moved in, but later it became a pure real estate project. After the real estate projects, housing tenants have a change in status. Our entire project management team was not in line with the rapid urbanization process, we did not anticipate such a rapid development. There have been also some problems in the technical design, we did not expect such a rapid urbanization in the design at the beginning there are some aspects which we have not thought of. There is the people's awareness of the problems: people's idea changed very quickly throughout the process. In the course of the project, they have experienced changes in their way of life and for such for example, expect from the dry type toilet to change into flushing toilets. The social acceptance of the concept is a problem. This is we have not adequately anticipated. There is a big change of people's way of life during last six years. This is my introduction to this project.

【Moderator】： Thank you, Arno Rosemarin, also Professor Zhu. Both of them, because in many ways, it is difficult to put our discussion into five parts, as I said, I am very grateful to these two very experts, and we also appreciated you have devoted much effort to the project in the past few years. Both of them were very comprehensive, so in this two days the discussion of all aspects of the project objectives is not just limited to this piece, and now begin to discuss. This section focuses on the project objectives, I propose a few questions, and I would like to explain a few questions in Chinese. For a target, we would like to recall, first of all has the objective been very clear? In the initial planning and design time, has it been very clear? Second, Even if has been, is it in line with the actual goal? There are two levels, one level is weather our expectations were too high? Another aspect, is it appropriate under our local specific conditions? Of course, for instance, Arno

Rosemarin just mentioned, in the past six or seven years is has been a period of rapid economic take-off in Ordos. During this period, urban growth rate is far faster than we thought. we just talked about this process a lot, because it effected the socio-economic background the project area, Through very dynamic changes in this, how can we see this project's objectives? The third question, because we are here, and everyone of the involved project stakeholders has there beem a consistent and common view on the objective of this project? Or say that our understanding of this goal are not the same, from their point of view, right understanding of this goal are not the same. Therefore, we suggest these point, we can begin to discuss it more. Now we begin the discussion.

Zhou Lv: Thank you, moderator. Sorry, I have a class this afternoon, let me say a few words, I am from Tsinghua University, for this project, we have involved for 3 years. So the feelings are still very deep. The entire project from the idea of speaking, is a very good project. But I would like to talk about my views. Such a large project is for research or engineering? Personally, under the condition of China's urban rapid development and the technical knowledge to a certain depth, this project should be a research project. But for such a large-scale research project, there will be very large difficulties in operation. So now there are some problems.

The second point, is the project's preparatory work. for the achievement of the objectives is very important to have a good of preliminary work, I personally feel it may go from inside to some conclusions. Tsinghua University take the responsibility of the economic benefit analysis and evaluation. Preparatory work has a very large impact on investment and the final cost-effectiveness. From the statistical of World Bank, the Asian Development Bank and other international financial organizations , we can see that early stage of a project, in particular the feasibility study stage, for the construction costs, its impact has up to 75% to 95%.When we have been involved, because the technologywas already constructed, so it is difficult for an economic optimization. So for the next projects, the preparatory work for the project must be done very pragmatic. Just like Miss Li Lailai also talked about planning, in particular, such a project, because it will be all the whole idea of great changes, then a lot of work to do inside.

The third question, I personally feel that this project for China's rapid urbanization, may be the lack of knowledge, including all of us. For China's development, but also

did not expect the development of such fast. In two or three years time, city changes. In the course of a project, sometimes it is difficult to control, this process can be a number of projects for the next step, such as the choice of this project, or the selection of such projects, I think it may have to consider. Especially in the high-speed urbanization of the developed countries, this aspect is very important. Because of my PPT file, Professor Li Zifu from USTB will help me to talk about the work we have done tomorrow, I will not repeat the details.

Finally, I want to say ,during my study for master degree, my instructor said, you do research, and you do the tests, regardless if the outcome is good or bad. For your research work it is always good harvest. Today in Copenhagen, Denmark the Climate Summit opened. ecological sanitation systems, the system for pollution reduction, and for the recycling of resources is in a relatively good direction, or a right direction. Thank you.

【Moderator】： During this two days, we really hope that we can have a good atmosphere. We all have a lot of feelings and feeling for this projects, to put this experience and feelings through good communication. wish that we can express their views.

Li zifu: Thank you. I did not want to speak to an involvement in the early time, I would like Dongsheng people to express their views and hope Dongsheng representatives will actively participate in our discussions. In response to the objective of the project, I just took part in the World Toilet Summit in Singapore, which had a discussion of sustainable sanitation system. We are very concerned about this one. Looking at the development of society, in our society now exists the environmental concerns, resource crises, energy crises, including the issue of climate change,. In practice, if we look at it, our eco – san systems are all interrelated. Ecological sanitation project, which is a very good concept, but the project itself, has many kinds of problems, including the objective, including the subjective. But from the direction of speaking, the objective should be very clear. In particular this kind of rapid development is a feature of China, not just in Erdos, in fact many parts of China, are at such a stage of development. We call it a transition. In fact from this project we will also have very good experiences for other Chinese cities, but also including other rapidly developing countries, where there will be this problem. I think this project

has a lot of experience and lessons we should sum up, these are very valuable. Thank you.

【Moderator】： thank you.

Roshan Shrestha: I am very interested to participate in this discussion, I also wish what Prof Li has just said, I want to hear a few people from Erdos, because they directly face this problem. The local people from the community, what is their kind of thinking,. So take a look at your local knowledge of this issue, how is the community awareness. ho has been able to playe a leading role, there is no local leader, no leadership, then this project may be difficult to achieve. So, I would like to hear people from Ordos speaking.

【Moderator】: Of course it will come later today during the discussion. We hope people from local site,for example Da Xing. Will speak.

Shen zeru: I come from the residents of the Erdos project. As participants, I would like to say something. In fact, when we bought a house, it was as a commercial house to buy, and we were not told that we participate in a pilot project,. What was the level of knowledge? It is a mature technology, and we are here to promote. Therefore, many people bought an apartment because the price has been low. Some people, like me, who is also not rich, we bought it as “second-hand” house. There are still some other cases such as children who bought the house for their parents. They are all born in the rural areas, and in order to take better care for their parents, they bought a house to live together with their parents. So the sense of participation is not very strong. Under this scenario, I mentioned that co-participantion / ownership is a key factor for such project. I think if it is a pilot project, we can have some property with test apartmemts. The people can lease it. But the conditions, the tenant must be integrated , p.e. prepared the relevant records . If you do not do this, I will not leased to you. Then there is a choice. We should choose the composition of the staff/ tenant involved in the pilot . If we do not choose, the results of the test will not so good, because they do not understand. For some of our residents, fair to say, they have a relatively high level of edcuation. But a lot of them are from the rural areas and illiterate, so there are differences in living habits. Therefore, in co-ordination, I think there are some problems.

I was involved in the last on-site survey. Do you want to continue to test? A number of residents participating in the survey had exchanged their views. How many pieces of 30 square and told me to go back again to resume, resulting in such a big loss, economically viable, I do notaccept. They are concerned about the economic viability. I've also participated in a lot of discussions, the main problem they talked about is odors. Apart of this group, of course not for all of the people but some people say that's enough to bare. Another part is the building. During the time of overcast and rainy days or windy days, or power outages, there is heavy smell, but usually it is ok. There are also a small number of buildings with essentially no odor. Why we changed into the flush ones? The key point is economic calculation, economic interests. The cost are a more impornat point when water flush toilets and dry toilets were compared. A Same or slightly higher is acceptable, the best of course, whould be a cheaper than water flush toilets. However, it is much higher, which is unacceptable. For example, if we continues to use, and I went to have a look the toilet, its cost is 6000-7000 RMB, a cheaper one need 4000-5000RMB, a family with such a toilet runs it 24 hours a day. This lifetime is not very long, perhaps 4-5years, then the cost is 1000RMB/year, to pay such money is difficult to promote this project in any case. Even they use it now, because they do not need to pay for it, but if you have to buy sucha toilet for four or five thousand yuan, I think with the current level of income it is difficult.

【Moderator】: Thank you. During the next two days, you just said that aspect, let's do a lot to further discussion. I think with this presentation, you have opened a very good start. let these two days you want to discuss these issues because it is your personal feeling. And there are technical aspects of the problem, while economic factors, whether inside the hearts of residents the environment has played a role ? On the contrary, as we continue in the next section, where we mainly want to sum up the various technical aspects. These things are all aspects of the problem, we have the opinions referred to, and then exchange, to see if there have some lessons.

Tian dongming: I am participate in this project in January 2006 , By that time ,building 7 was just handed over . The total number is 43 buildings, I do the post-maintenance, as well as the process of testing . Like Mr. Shen said, the economic aspects of households have to be considered, but in the course of the project ii is only considered now, because they never paid for the eproject before. I think the biggest problem of this project is that the problem of odors has not been solved. There is a

household say, you say is the goal, is to reuse, recycling. For a relatively large number, there is little knowledge, people can say that. One man said to me, he does not want to use water flush toilet at home, he went to use public toilets, he felt that costs of water, he does not take into account the environmental impact, mainly on account of expensive. No matter from which level that can be combined together, that is, water saving. The idea is certainly good. But the main problem is to combine theory with practice. As Professor Zhu said, i felt that the biggest problem we face is, that technical preparations are not in place during the process of the project. Really is. Why is hard to say because of various reasons, but for a relatively large-scale implementation, the technology is not available, for implementation and also the design. Whatever the type of project, when it involves people, it must be careful. Test and research can be done with less contact to people. And during research, we can gradually find out what is inadequate, and gradually improve it to ultimately achieve success. Be involving directly people, and for local governments including workers, the pressure is also very large. Some problems can not immediately be solved, because it involves relatively large populations, the also people's reactions is relatively large. Because at that time the agreement is , the Swedish party is responsible for the technical aspects and on our side we relatively strong dependent on this. Hope that this and similar projects, the idea is certainly very good, and this is definitely a trend. However, it is only a relatively mature, and not absolute mature technology, like Professor Zhu, we need research and development projects to test this process, to improve, to model, and then test & demonstration, and then improve. This process is very important, and only a mature technology, one which is easy to use, although requires a change of habit. I would assume in three years, the habit has changed, but our immediate concern is, when it comes to the point that the problem of odor has not been resolved, it led the user to never accept it, and then gave us an ultimatum to the next

Jiang Lin: Thank you. I do not have direct participation and involvement in Dongsheng project, but I am very concerned about the whole concept, I was also involved the orgaization of 2001 First International Ecosan Conference in Nanjing in Guilin. Since the success of Guangxi, ecological sanitation has no longer to do any experiments in rural areas, because it is very mature. Next, the key objectives of the main ecological sanitation is how to introduce this concept to the city/ urban areas. The Dongsheng project, I think, it's highest purpose is to achieve a breakthrough in

this area, and then applying this concept on all our levels, from the central level to the provinces, to the local decision-makers, to believe it is an alternative technology, I think this is the highest purpose of the project. In order to achieve this objective, we must focus all our resources to ensure success of this project, and to ensure that this project can be copied and is sustainable. When we select the location, many experts have been to Guangxi, we have a few of experience, in fact there is a development, now leave this area and had selected small towns. Greatest advantage of small town is the position, and we can adopt different technologies. The distance usually less than 500 meters and in this case, we can easily communicate with the user. Now the project cut the transition and come into the city all at once. So i am more concerned about the future. I still have confidence in tecological sanitation for the city. To use the words of China, we have enough money. I believe that investment from central governmnt to local government in this area is enormous after Copenhagen meeting, we can apply for investment in such project. Ecological sanitation of china would be to flourish.

Wang Qiang: I come from DPO, participated in this project in 2006, for the goal of today's discussion, my personal feeling is that development and changes of the Erdos have been particularly fast in recent years. In the 90s last century, Erdos region in Inner Mongolia : has been the last one or second to last. But now, Erdos has become most famous in china, and even very well known in the world. This indicates that Erdos has changed dramatic in recent years, resulting in the pockets of a lot of people became more and more full, and people having more money. The population the Dongsheng District has probably been hundreds of thousands or less during the 90's. Now it increased to more than 600 thousands.

【Moderator】： You mentioned a very important issue, just like some others have been mentioned including Mr. Lin, Because the rapid urbanization such a kinds of projects are more urgent. Because we have many times mentioned that, from the experience of developed countries we can find that the traditional system, which has its deep-rooted problem. There is a sense of urgency in such rapid development of our city , we must find sustainable ways as soon as possible. At the same time, under the rapidly changing environment, this brings many difficulties to the project implementation, design, planning. In this project indeed has a lot of dilemma. For

example, the initial design of Erdos project changed a lot. The main reason is that the high-speed or super-speed development in recent years.

SUN Li-xia: Let me say a few words. Tomorrow there will be a more detail introduction of the project situation since the last 6 years. In today's seminar, I would like to share with everyone the objectives of this project . There is no objection to the initial intention, The initial goal is good, we would continue to promote this concept in our Dongsheng District. Will this technology continue to apply? I think this is not an end. We are now just doing a summary of the Erdos project, there are some problems for the technology, but the problem is caused by many factors. For example, just like we talked about, the acceptance of the people, selection of location, as well as our pre-planning, planning, design, and so on, as well as training for the residents. This situation is not at an end. It can provide a good lesson and experience in the promotion of ecological sanitation toilet systems all over the world. I think this is a very valuable point.

Second, in my speach tomorrow I would like to talk in detail. There is indeed a bottleneck of water supply. The population growth of Erdos is very fast. So far, it has reached more than 500 thousands. Therefore, the speed of development is very alarming. We see the world's investigation last time, Erdos development is on the third place of this country's, But it is a small town, it's just a region, prefecture-level cities, and it can reach the third place. So you can imagine the development speed during the last six years. Our projects, must catch up with rapid economic development the environment and education level of the people also need to keep pace with the speed.

Third, the issue of publicity and education was ignored by SEI and the government. There is no depth to do such training , this work is not very simple, I can say it is a very large system engineering, especially in our district, the occupancy tenants mobility is very large, like teacher Shen just said, he is the second- stay, in the first batch of stay, the Government has made a big effort. We established a specialize office to sign a deal with the residents. The movement is very large, there are many reasons. we want to ebuild originally in this district a human settlement with zero-emission, local government considers the water-saving aspect. The second consideration is the overall urban development, urban and rural areas from the beginning occupies a building, step by step build urban roads, this piece of policy is

very large, the idea is also very wide at that time. Our education has not kept up, so that residents do not know the ecological sanitation systems. Especially when they have no idea about the system and use it, they think such system is inconvenient and backward.

The fourth aspect is the design and planning, it is true that the design was not well-considered. We did not think about so many problems.

Then there are also problems of construction. In Sweden, the toilets are in just the second floor, in Guangxi, here is a square. During the first contact to implement such a big project like Erdos, residents, government leaders are very happy. We wished to introduce this project, but also water-saving, environmentally friendly. For our future sustainable development it is a good pilot example. Hope that all the participants objectively analyze the problem, in particular, the problems which came after moving in. We have set up an expert group last year, and SEI also made a great effort, the group also went to the field and tried a lot of ways, in particular, Mr. Peter, Professor Li has done a lot of work. Many residents said SUN Li-xia, project leader, is a woman, if she is a man we will beat him. Therefore, they still give me face-saving. One can imagine how serious the problem is . Tony counselor (Swedish Embassy) came to Erdos earlier this year, as well as Anna, and all the experts, as well as residents, many of the participants, give us more advices. Our government like this project very much, but the main point is , the pressure is too much, no way. But we have confidence to promote such system at surrounding areas.

【Moderator】: This part of this morning, the warm-up exercise has now completed, we are increasingly active. and we learned , what are the problems, what id our experience , and how we fel about this project . All of these are very valuable. This is a learning process.

【Moderator】: We have to start the next session. In fact, we discussed during the previous section already, and it is very natural that we entered into the subject to be discussed in this section. We have actually used this section to look at our system, all aspects of the technology, and we hope to start this discussion. I will ask Jenifer McConville to introduce this system and to give us actually only a recall I, because you are inside and very familiar with every aspect of the system.

Jenifer McConville: Hello, everyone. Today, this session I would like to talk to everyone about the technical problems. We are mainly speaking about the user-related technical issues, this part accounted for a significant role in the project. From this point we will talk about in terms of collection systems, ventilation systems, from the user's perspective, how we use these technologies. Tomorrow, we also will talk about it related to the environment, as well as re-use, as well as wastewater treatment systems, today's major stresses associated with the user system. For example, the toilet, we want to talk about how big it should be? Because we know that in doing scientific research , for example, we make a seater or a good toilet, and compare it with the good operation of thousands of toilets, it is two different matters. So we will talk about he number of toilets to build and be more appropriate under this project idea.

Let's take a look at the toilet. First Mr. Wei-Wei, will talke about the ventilation, then also talked about the smell by our colleagues.

Wei-Wei Zhang: Hello, everybody, I am an ordinary worker who has been involved in the project and responsible for the maintenance of the toilet. I work as the technical assistant of SEI until now. Let me start with the constuction of buildings. The real estate development company, Daxing is responsible for co-operation with this project. There have many problems, for example, collection / ventpipe is shared by four households, they installed 75 mm, this problem has also led odour back into the bathroom. Deriviation of the urinary hole is too large, resulting that the Toilet can not be installed properly. There was originally using a telescopic-movable lid for the containers in the basement, according to this method, I think it is feasible, but technology is not mature, such as removable lid and the sponge material inside the sealed container was easier to remove, and worker in the replacement of containers is also very difficult. I am more clear about this point. But I think it should still need to improve on the lid , because there are many drawbacks when used, and the box is difficult to seal. The users of the urine diversion latrines, they are a least bit of careless with the use and drop manure where it is not correct. But even for right fecal separation, difficult to but flowing down from high places to the down, o fill the feces cintainer. Therefore, accumulated, allowing the tiles to become dirty. In the splash of the time, so the toilet pipes are filled with feces when handled.

On the Ventilation system, first of all , the installation of the fans is unqualified. The fans can not be firmly fixed, the fans will vibrated and will gradually increase, which shortened greatly fan's life expectancy. The fan noise is also unacceptable. In particular, for the first floor tenants. I think the pipe diameter for roof ventilation is too small and does not meet the amount of ventilation fan, so that fans do some exercise in futility. fans we use less wattage, 50 watts enough to solve the problem.

The Toilet repair rate is too frequent, I sometimes repair, in some household repair two or three times a month, or even four times and than can be achieved. And there has been much trouble to repair them, basically every time we need to lift the Toilet . Residents complain, because he likes a clean place, and everytime the toilet was moved, get in a mess, so residents also quite complain.

There is often water in the basement bins. we advocate and often told them to not pour water to the Toilet. They told us it was just spill when washing manure. We also taught them that the Toilet bowl will turn over As long as people get on to. But it is easy to paste in faeces, it is difficult to contain fundamentally.

I am also in charge of the project of organic composting, I was not quite familiar with such technology , but with the help of Germany friend for nearly one month, I gradually became familiar with it,. Collect the organics in the warehouse, adding a certain degree of biological bacteria, then a series of procedures for composting. The composting is still running until now. The product were given to a local farm as fertilizer for vegetables. We including Arno Rosemarin have been there and the vegetables grown well and farmers welcome such products. We also used sewage sludge of the pond for composting, but now we didn't know the effect yet. We have also carried out the plan of waste separation, distributed the green garbage bags and gave green bins to households free of charge , and tell them why to classify the waste? what kinds of benefits for classification? This is also little effective, but I believe this is a matter of time, if the project can continue, the residents initiative to separate the waste, this is not a problem, we are currently using the garbage for composting .

During the period as technical assistants, I also carried out many tests, installed a new type of toilet from Sweden, used in one unit, did not share an air duct inside the building to conduct tests. Villa 9000 vent pipe, is connected to the other three common exhaust pipe, it also has the odors problem due to the weather. Installation time, installation of wind-class pipe connected to the original bathroom ventilation

pipe, we all know, it is mounted exhaust fan, in case of Villa 9000 closed, conduct the testing, we had visit many residents, this ventilation experience is very important and also had a great help for rectification. In China, all bathrooms should have this ventilation, but for a variety of reasons at that time, such toilet room which does not need that indoor ventilation is counterproductive, builders should be aware of the vent pipe.

we also carried out experiments in number 24 building, a modification for Vera 9000, feaces always falling down to ground, stored in the end oin the bins but can not be dry due to many reasons . The fan mentioned above has reverse phenomenon to Villa 9000, Still unsuccessful.

The last test, four households sharing an ventilation pipe, thus can avoid the reverse phenomenon of fans underground and Vera 9000, so that even if the big winds there are no effect, they find the use of such toilet is very convenient, even two tenants are willing to keep using our dry toilets. They said such dry toilet can be used. The test is also one of the most successful test, this is worthy to promote. So I think our project does not fail, we are just not fully prepared to catch this opportunity, but it does not mean failure, it does not mean that we should give up such project. Although dry toilet does not exist in Erdos, but I believe that it will be goes into every household in the near future.

【Moderator】: Now I want to invite Professor Zhu Tian-Le from Beihang University to give a speech on the ventilation system, because the problem of odors has always been one of the key issue.

Zhu Tian-Le: I will talk about the project's ventilation system, hoping to arouse our sympathy, to raise some questions. One is to give a brief introduction on the ventilation system, and second is talk about some of the identified problems based on our understanding . Thirdly, we propose some transformation, whether successful or not, I put forward some of our refurbishment measures and introduce our proposals. Fourth, how was the transformation effects in a short time? This are short-term results.

First, about the ventilation system, there are three sets of ventilation systems in the whole project, one is mechanical ventilation system, it has a fan, from the stool, and then a drop tube for excrement, the final adoption of an exhaust fan. Another one is a

natural ventilation system, take the urine, there is a natural ventilation system, including the urinal, and the third is a gray water system for natural ventilation of the system. The issue of ordor was mostly caused by the faeces and urine ventilation system.

The Faeces ventilation system , it consists of one unit. four or five, mostly four households , the faeces drop pipes of each household go through a main pipe. Then finally by the exhaust fan to get out. To this problem that are that odor and smell goes back into the room, i feel one) are the design details that from our planning and design stage. The second, are the construction problems. The third are problems in maintenance.

The problems in the design phase, there is no water seal in the faeces and urine pipes, so that caused some gases, like ammonia, going back up into the toilet. Second, for the seal (of the bins), we use a sponge. When we had a look in the basement, the sponge was damaged seriously. The third is the fan does not match, under-utilized. The smell problem can be solved through the wind volume, but that would bring a financial burden, and fan is too small. There has a problem of uneven flow, the so-called unbalanced flow, before the branch pipe to the mains. The pipe is very short in four households, and not straight, there are curved. And even though we have a valve, you want achieve balance, this is actually impossible, because you can not achieve balance. you measure the amount of wind it is not accurate, because you are not direct observation. This caused sawdust fill full pipeline. This is also commonly observed, the fans, this is a vent pipe, the middle is spring soft linkages, so that some components have resulted in the unusual flow back and forth, the air flow could not go smoothly, or the airflow could be completely blocked, and in this case, Even when you increase the fan power you can not solve the problem, because it is completely blocked. There is a wrong connection problem, I did in the past after a great effort, , when Zhu was also a teacher, I would say Sure there are problems with so heavy odor, the ventilation should have been such a pass, up walk, and then the up, but the household is not so go, this place might be stuffed, and gas is such a walk, from the urine hole, the wind speed of up to 34 meters per second. We have proposed demolition, because the ventilation tube placed in the top layer of a Court which, when we made a lot of testing, the project's wind speed of four meters per second.

We have put forward a number of refurbishment measures. First, add water seal. For the urinal, originally the urine passed directly through underground pool, and then added a water seal, the upward flow were blocked. In this place, odor sealing device was added through which the odor could be blocked in order to avoid the rising of odor. I think that is unrealistic full realization of shelter from the wind to run such a system in a relatively small operation, maintenance. So I changed it a sealed box the way through a box on the box which makes storage pail latrines.

How air pressure balance between the four faeces bins? We adopt this approach, to avoid connecting of all pipes. In the future ii is completely symmetrical, by avoiding in the future T-connection, then you can achieve a pressure balance for all 4., from this faeces box to this box the difference is within 8%. Last is to replace the fan, the Swedish fans, using such low-power, we measured the wind speed can reach 80%, 90%, but Ningbo Ti fan, only 40%, 60%. Therefore, each household must be at least 30 cubic meters of air volume. After the exchange of fans, the effect is very obvious. Of course, in this case, it increase your energy consumption greatly.

We did some tests, realistic speaking, for the transformation of the user, but in a short time, indeed achieved significant results. Not only from the subjective results, but als some objective. Subjective measurement is about the users and their feelings. For Objective measurement, we take measurements of ammonia, because ammonia is a representative indicators of health establishments. By measuring the ammonia, we note that after refurbishment, we are able to meet the countrie's indoor air quality and health standards.Our indoor air quality standard is 0.2 milligrams per cubic meter, and has reached the requirements.

But I must say that it can achieve such results in short period of time by taking strong measures to maintain, I think that it can not be guaranteed in long-term. I dare not say what conclusions I have, I just want to propose that such a ventilation system to cope with a dry toilet is very difficult in high-rise, high-density residential areas,. However, such a dry toilet ventilation system is feasible in not very populated areas, and housing density is less. Why is it not suitable in a high-level, high-density residential area? One is economic problem, nd there are also has many other aspects, such as the risk of spreading diseases, and this must be taken into account, because the density is too high. The second is the demand of operation and maintenance. The stuffs of SPO have such experiences, such a system, technical of operation and

maintenance are difficulty, the workload is a heavy. To change the parts often then also the resulting economic burden is heavier. That was my report. Thank you.

【Moderator】: Thanks Professor Zhu. The two keynote speaker we invited gave us their speech. Like last time, we expect from the specific installation of the system were adressed some of the specific experience, to the feasibility of this system. Let's now begin the whole discussion. Jenifer McConville also suggested a number of issues to be discussed. The first one, this system, there is a big difference between two families, 2 floor and 43 buildings, here hawse have the question of scale. The scale from the mature cases on two floors, extended to five-storey building.

Second, we have also been talking about this, the applicability of dry toilet system to multi-storey buildings.

Third, if we continue to use such a system, the third and fourth is actually the same problem, what technologies must be improved?

The next one, if we think the system would continue for another year, then, can t achieve any substantive change? Wei-Wei also talked a lot about it earlier. From this perspective, there is a short-term and long-term aspect. Long-term maintenance is a long-term problem. If they remain such pressure, pressure from all sides, and technically the workload is very large, this is a problem, this is only a suggestion of some aspects.

Lin Jiang: I only talk about what ideas because I just saw the system on site yesterday and did not participate before. However, I always do such test before. As for this system, from the original design, it is basically a complete replication of the technology of Sweden, without taking into account its local suitability. In Sweden, this is a very important aspect, the user is responsible for their own maintenance. But in Erdos it become a multi-dimensional, its involving a number of families, it is a shared system, which is fundamentally different.

In fact, we are now having the crux of the problems, and cause why the entire project can not be sustained: this reason is odor control. Odor is the dominant aspect. The ventilation pipe is under pressure, this pressure has led to great problems. In fact, we should stress on two aspects, one we have the service system, in fact, we can do in the original stage, the first of the odor down, This can be done, in fact involves the whole system engineering. Purely technical terms, the pipe pressure will bring a lot of

problems, the pressure is not an ordinary pressure, the vent pipe is a negative pressure, and I placed a toilet paper there directly, fecal pipe has negative pressure and is able to suct toilet paper into the pipe, but then rushed out by the ventilation pipe. In this case, the pressure of the vent pipe supplied by any household could not overcome the positive pressure, then the users had to suffer the odor. Moreover, you must be increase the power step by step over in order to overcome this pressure. The first, the source control, you have a service system which make the smell to a minimum. The second factor, I change the vent pipe into a negative pressure pipe, this change could be easier, for example, to design a vent fan at the top, from my experience, I think to turn it into a negative pressure, which could have this effect, we can try.

【Moderator】: Thanks Mr. Lin.

【Peter】: Thank you. I want to say something from technical point, you have just talked about this, many tenants have complained the odor problem since 2006. We have been thinking about solutions, we have done some improvements. For example, there is a problem in construction itself, the biggest problem is its supervision. Those technical solutions, which came from Sweden to China, and the entire process, of installation of these technologies, it lacks the relevant supervision. I would especially like to know why it is successful in Sweden But not here? It has some power issues, and our lack of training , it is completely different in China. We now learn certain lessons related t the entire technology design. For instance, in Norway, in Cuba, they are also places to train people, because they have a lot of plumbers. But in China, your design can be very good, but coming to the implementation of this design, when not well monitored, there will be many problems. We know that. For the ventilation, we can look at this aspect, it can be very good from a technical point of view of the work, but when installed in the building itself later, it appears there will be odor. For example, your urine tube, it connects to the water flush pipe, this is a wrong connection. So during the constrction process and in the installation it did not follow the original design plan, therefore we will have problems.

The technology construction faced such problems in 2006. I have a friend in Japan at the same time in 2007, we all saw the details of things. This are the problems of construction which you did not well incorporated this system into buildings.

For example, we will return to the issue of social acceptance and population growth. From a technical point of view, we do not think the system itself, not the dry systems,

but in the construction process, can not have a good convergence and transition, this is the main problem.

Liu Zhong: it may be wise after the event, we imposed on the households to use sawdust when they use the dry-type system. I mentioned a proposal in 2007, I was engaged in agriculture, an inappropriate metaphor, we have an ecosystem in recent years, the project is the differentiation of pig fecal bacteria. I recommended at that time, increasing amount of sawdust will cause two problems: for users, cause they consume sawdust in large quantities, and to our sanitation workers, resuls in great labor intensity. that thing must go out into the take, our sanitation workers, using a device later, from time to time to give it anti into them, such a very small amount, may be able to solve that problem. In the bins, when the temperature is suitable, about 70% to 80% of the stool has been composted. But it will be less in the future, caused a problem for latter part of composting,. Compost product quality has to to achieve the national standard in future. Since you want to produce then it must conform to national standards, and now the results, no matter how much heap, you do not meet national standards.

Zhang Lijun: I have already said, I was engaged in architectural design, I was engaged in the equipment from the project beginning I have been involved in preliminary work. I think the project is indeed too big, when the release is 1 and 2, the final will all be put into practice, reach to 43 buildings. The difference to planning where it used to be a migration plot, as for the tenants, they do not have toilets in house, if they had been trained at that time, they are to live in a home with a bathroom, and their conditions improved, and they will be very dear. But later it became a commercial property, this is not the original intention. People's understanding has not increased to that high level, they pay 30 to 40 thousands to buy a house, they just need the comfort. if it is not so convenient for them or bring trouble in use, so they are very disgusted with this thing. We have also been in the rectification. The technology is not very mature at that time, and only installed in two floor-buildings in Sweden, but here it is 4-stor. one is the area of bathroom very large, we have some of the more then five-layer, we didn’t install toilet on the 5th Floor , except that a urinal, it caused inconvenience to the tenants. So I think the technology is suitable for 2 floors, but not for more than three stories, the area of bathroom becomes small, and it should be better to handling the odors.

As for us, we worked based on the design specifications, the technology is not mature, and under design specifications, we and professors Zhu, and SEI made many changes in the diameter, there are little knowledge in this the process.

When the project was designed, the place belongs to the edge of Dongsheng District, and the municipal pipe network did not reach that place. So for sewage water, urine can be directly discharged into a biochemical pond. But now this area has developed into the center of city, so the sewage system and all the municipal pipe network has reached that location, so people want to change back to the water-flush toilets. Now everyone can accept. I think if this problem can be solved ,it must solve the odors problem. For the households, they don't have strong environmental awareness, if the environmental awareness has not improved, then they would not recognize this problem. And then they are thinking they can afford the expenses. So, a bit difficult to promote for them.

【Moderator】: Thank you, Mr. Zhang. I would like to emphasize that, we have done many studies during the past seven years. for example, one of the findings, just like the discussion from the project objective. In the whole process, a problem in the planning, the other big problem is the external changes . By then, the design assumed the households will be migrants and looking at the group they either used in rural areas only public toilets or either their own toilets before., Now the project is within the district so the population ratio and structures are completely different.

Roshan Shrestha: I would also like to mention the odor problem, I would like to share with you some of my experience. I have been using a dry toilet in the past six or seven years, and we know that these waste products from the second floor directly to the basement, which has fallen from the top of the basement. This is the same directly with the master bedroom, sometimes I'll smell some odor, but most of the no smell . Then Some of the barrels loaded fecal leakage, for example, there is no comfort, it will have some smell, which my colleagues have just talked about. Adding sawdust is not a good approach, because it can not absorpt moisture. Adding some more sawdust, it would not be able to stop the odor problem. Therefore, it is not a particularly complex issue. You have an exhaust vent, which is the ventilation tube, which is from the basement up to the top, where you can blow the smell out. Connected with main pipe, it can help you in the basement ventilation. There is a ventilation fan to reduce the smell, that it is in charge of main pipe separate smoking

can. Sometimes there is a little bit of smell, or be able to smell, and now we are here, when we build pipelines, it goes outside, but when you repair the pipelines, because it has a certain length and height, there will be some pressure when it goes too fast , there may be some odor leakage, in fact you think it is the ventilation, but there are still a number of scent into the main channel. Another problem is additive, that is, sawdust itself. If you use other substances, it may not have such problem, but if you add sawdust, there is such problem, because in itself it can not completely to remove the taste out. So this is a problem.

JIANG Pei-yuan: As a project developer, I simply talk about our views on this project. To attend this meeting, and not to complain, why I say that? There are a lot of bad reputation on our company after we participated in this project. which includs we do not have any profit from this project so far. Of course, the point of today we focus on eco-san systems. At that time, we did a lot of investigate before invest in this project, the conclusion that such a system has market, technology is relatively mature, so we finally decided to do the project with the local government and SEI cooperation to construct a large-scale eco-town. We did certain amount of preparation, this eco-sanitation systems, from single, two-story to four or five-story, this will need a period of time. Therefore, the construction of the buildings was divided into different stages. Stage one was built and put into use in 2005. But after completion, just in the time of Erdos region's rapid development process, after we started the use of the eco-sanitation systems, I think the lack of pre-demonstration. After starting to use ist, the feedback from residents ame on the problems in our system, as well as how to ssolve, we do not have adequate knowledge of them, nor take a great effort to solve these problems. And then blindly conform to the city's rapid development into large-scale development and construction. We develop ecological sanitation systems and housing, as a complete product to the society. But eventually most owners do not accept, lso changed back to the water-flush toilets.

From technical point, according to my personal experience, because I was involved in improvement process in second half of 2003 Until the first half of 2005. After that , I participtated less. But for most of time, I think this system has three parts, one for each owner's bathroom, another one is the collection system in the basement, the last one is the recycle bin. I participated in the process, I feel for the toilets and ecological stations, the experts put considerable energy. The technology, including some ideas

are more mature, but for the urine collection, has not put too much emphasis. Many of whim are involved in the project construction process, continuous improvement, because I also participated in the process of improving, especially for the seale of faeces bins, including ventilation piece, are by some local designers, some engineering to do the job. Now just because of the resulting urine problem the project is not accepted by society, and can be said to be a failure.

Of course we can't forget the technology because without this, the concept would never go on the road, and later the application can expand. But I think let's be best to combine the power of the stakeholders, in the second nodes and links this piece. Let's be a little more systematic and more formal. Now look at some of the negative evaluation of some of the problems encountered, including our original plan to develop the size of nearly 3000, and we stopped with less than 1000, and this a great impact for us, if this aspect is resolved, the remaining issues will be solved for.

At the same time f the odors problem or likely to produce some of the pollution problems. I think we need to improve it in the next step, we should pay more attention to the latter aspects of the cost of operations. Because we sold housing to tenants, the operating costs, which is now borne by the government and the SEI, but eventually, if passed on to the tenants, I think every owner find it difficult to accept. Another problem in the housing construction process is the toilet area is very big. Later as a commodity, when in the market, this is also of great importance to local residents. The higher floors, the more toilet room, because the ventpipe accounts for space, this area for different floor can be very large. This is also as a developer, the research institutions need to solve problems for the owners in the future.

The last one, if we set an example, a pharmaceutical research and development, there should be a clinical trial, and then finally goes to market scale, I think the pilot demonstration phase should be reinforced, and I hope experts are able to better work, and ensure that strict standards can be assured. Such a product can finally go to market scale, so that for our region, and for our community, we can contribute in the energy-saving, environmental protection, and sustainable development, and including our developers can do some social responsibility.

【Moderator】: Thank you. Da xing company played an important role in the project R & D. During the times of rapid development the cities, such company undertakings related to environment, public welfare, and the relationship between government and

private business partnership is becoming more and more important. The next two days discussion, we will once again return to this issue. There is need to establish National's environmental policy and the involvement of government and private sector. When we promoted this system for the city , there was no possibility for real estate to intervene in. Because that are standards for the city's commercial housing development as well in the case of a real estate development. The problems which we have encountered ,successful or unsuccessful, indicating that the problem is common for a large scale project. We finally have to focus on further discussion, the whole process of quality assurance issues, the quality of identifying problems that will eventually effect the relationship, there is no one rule to the provisions of such relationship.

Peter: Thanks a lot. I only want to make an explanation, we have a four-storey building to get some good experience from of such system sicne 1994 in Germany. I have been visited Erdos site a lot, there are many reports, you could read. We discuss here the three-floor or four, but this is not a problem, the problem is wheather the population living in this building is appropriate. Because in Sweden, in Germany there are many cases now, but in the management of compost and the toilet its actually works well, and that this is not the same. You enter an ecological residential area, the first these people need to improve are their lives, they do not put too much effort this time on the toilet, or a garden too much maintenance, so dry-composting toilets should be a solution. This is my experience, which is also the experience of other projects. We must to select, to select ecology. This does not only refer to ecological dry toilets. We should also consider our ecological concepts, as well as our entire system, in fact there are two legs to walk, this does not mean that the floor level, two, three, four is the issues.

Hidenori Harada: I agree with what Peter has said. The adequacy of our project, the location should be considered. Technology may not be the best technology, but we have to consider its low cost, and how to control the cost, this is indeed very important. In particular, in this project, in fact from the implementation phase is the fastest and the largest-scale. Why didn’t we give more consideration to quality control? Consider coming problems. Just look at the technology itself, of course, the technology is good technology, but well, you have to have quality control. Good technology but also quality assurance.

Zhu Qiang: The technical problem, in this project which is not purely technical issues, technical problems are easily resolved, but that involves a number of problems, one aspect of the problem is the user management, and user involvement. This is a very crucial issue. For the odor problem, I may put it bluntly, then, there are some here on behalf of users do not agree, I think that this odor problem is not so serious as some tenants reflected, because I have been with my other SPO stuffs to the scene and visited many comrades. When the user called to complain there is a serious odor problem, and I immediately went to his house, but I couldn't smell odor when we been there. I asked why, he said that there is no odor when you come. So I think the odor problem is there, but is it really so serious? This problem, we have do an objective analysis of some of our survey data, for example, in 2009 in a paper written by the so-called scoring inside the investigation, I believe that this is a very ill-advised investigation.

Secondly, the management. The Government's participation, I think this is very important. What he said was very right about technical supervision, we have it or not? Yes, we have. Spending money, for employing the technical supervision departments, but what the supervision department has done? Finally you gave list with signature, that construction would be finished . So many things that were still unqualified, but they signed . We have found these problems, but we can't solve them in regards of only a few people of SEI. Even as they are also tried very hard. these issues were reflect. We asked to see the government officials for many times. but never met, because they are busy. Because of China's special circumstances, maybe a lot of foreign counterparts do not understand the situation, when introducing new things in China, it is impossible if there is no government support. Then these problems, can not be resolved just by the technical staffs, or other staff.

I think about the technical problems, of course. But inside the eyes of the beholder the wise see wisdom. These programs should be seriously discussed at the start stage, and then some experimental studies to test needs to be done. But the problem is to implement a project without these two factors, I think it's impossible.

Arno Rosemarin: very interesting statements, we have improved the ventilation system, for example. 2007 has been a very interesting year, because in 2007 we have a conference in August. We have done a survey, and 70% to 80% of the households have accepted the system. Not so many people are resistant. And that year,

the winter can be said to be one of the most cold winter in 50 years. That led to a lot of problems, such as gray water and ventilation problems. In fact for the ventilation system there was almost no ventilation,. During other winter there is ventilation, but for this winter it stop. From the construction side, it is like that. We only consider the ventilation, and later found to be a big problem, because we have some heating equipment, the ventilation is not open. So the households maintain the water. In this case, use this water to take a look at how to reduce odor problems. From that winter, these families to change their thinking, they believe the system can't be use any more. This one thing can cause so many problems.

The other is technology, we all talked about the technology, technology is good or not if you like your toilet, like Hidenori Harada once said that you will take care of it. If you do not like it, you may leave it alone, it is in a very bad state. if the city's residents move into a new, house we may not deiced have no use. , But we now have separate systems, we have to test, test the system, good or bad, And it is useful too , and can resist some bad weather, needs ventilation, so in operation, as with the toilet is the same, so we can change these problems. In fact the water flush toilet, it is not very good, it need water to block, this at the end of the following, is there a smell? We use dry-type system is gas block, gas can also control it. Of course, we come to a total of four linked floors, this is actually a great potential for improvement, of course, I am not so good with the discussion of technical issues, we will convey this message to consider.

【Moderator】: Is there anything you want to say ,Li lailai?

Lee Lai Lai: I just talked about a number of factors, there are different factors, there are technical factors, there are some social factors. The idea of " knowledge economy" was discussed from the early 90s in our country. Why knowledge will create the economy? It is because of information symmetry, and we economists make this information symmetry, and information generation, knowledge producers and users of knowledge to become symmetrical. After symmetry, an exchange can be fair, effective,and can be more efficient. Now I feel that inside, there is a lot, we just talked about the issue, talking about a lot of technical information, not every participant is very clear. Some issues, including the technologist staff also had no idea, just Arno Rosemarin mentioned, in 2007 the coldest winter revealed some problems. I think that technically, I have the same feeling. Mr. Lin Jiang just mentioned the successful

experience of Guangxi, Guangxi's successful experience, I have also done projects in Guangxi, in Gongcheng, which is the most successful, is the methane (biogas) project. In thi project we act as an intermediary in terms of actually doing the development is now a lot of partners, namely the intermediaries, and users of knowledge broker. I find it very important point, you have to let the user know clearly about this information. There are a variety of ways, the point we talked about the issue of training, user acceptance issue. Users who do not know the whole information, in this ways of information asymmetry case, you expect them to accept? However, a very successful experience of Guangxi, Guangxi is China's most successful popularization of sanitary latrines. Now it seems 20% of the world's production of ecological sanitation toilets is in Guangxi, which not only achieved that poverty problems, and ecological and environmental problems have been improved, it also created a great job, creating a lot of industries. Mr. Lin Jiang knows better than me. In this, this information, without reservation through a variety of ways to convey to users, and users to participate in the project planning process.

Han guoyi mentioned earlier Guangxi is a very good experience, I believe besides the technical problems, and there are many technical problems, but these technical problems, do not solve the case, in fact, through it can be resolved through the social process. This social process, you have to say the benefits of knowledge-based economy where it produces? To make benefits from the knowledge produced economy, I think this part may lack in our project.

【Moderator】: We have focused on the technical aspects in this section, we should see the complexity of the project at the same time. For the complexity, there is no things that we can separate / isolate it. It is intricately linked together. Because of technical problems, the issue of social acceptance, there are all sorts of reasons. At the same time a system is shown in some respects the system problems, such as maintenance issues. We have talkd a lot about people, for example, a if there is such education of the user. The current rapid urban development, a district of very large floating population, has also brought many problems for education. In each of the sessions, if the specific time when we think really be able to see some of the problems in this project. I invite Jenifer McConville to give us a summary.

Jenifer McConville: I think Han guoyi has done a very good conclusion, let me talk about sensibility, many people talked about the technical aspects, as well as the user

issues, we still will talk about it this during the afternoon. There are indeed a number of technical aspects, such as in the construction process, we may paid enough attention to this part of the system. There is what we just talked about a number of other issues, such as technology, if you build on this house, we can use it well. And our work is ok in theory, why not in real life? I want you to think where it went wrong?

It was also mentioned, how to improve this system? Make it more suitable for use, especially inside a building in a certain level, how do we operate a system?. We have been talking about technical issues, if it construct alright, and weather it can works well? Some people would say not. If this is the case, how do we solve the existing problems? We know that some commentators talked about, the system, which in high-density populated areas is not suitable, this is what we are discussing, I think this is an answer, why are we the technology well, in Sweden used to particularly good, why Dongsheng, in the Ordos will not work, just that person that the population density is a very good answer.

Arno Rosemarin: We feel that this is a very important point, in our project which is the odor problem. We know that the smell has plagued us, and we know that in fact the smell of any of the sanitation system which is a problem, not only in our projects.

We have two solutions for remove the smell from the user's house, one experience in Germany and Sweden, we are able to get all the gas to a negative pressure management area and then let it out. We feel that a breakthrough point, we used different methods, first of all just the toilets of the gas, residents are not living in the basement, and they do not control how the gas pipe inside the matter, we should be talking about, we draw only a small amount of gas pumped into the pressure pipe, and then put it out go, this is why, in the past 6 months, a separate toilet during the trial system. Technically, we think it is to continually improve, but in fact we have some design problems, have the construction and management problems. Professor Zhu also discussed earlier, we will see what our challenge is. We have a world chain, we see what we can do, this is our project derived a result, we have these circumstances, we are faced with these problems, how do we find a solution.

【Moderator】: I very much agree with my colleagues have just talked about the technical aspects, I, as a non-technical experts, we know that ventilation, odor, we really should have a break point, that is so that we can learn, how thing going on

during the last six years? Weather the crux of the problem is toilet itself? We were finally able to find a technical solution to solve the crux of the problem, solve this problem, of course, I am not an expert, I believe we will find a solution through an integrated program to consider.

If we have one more year time, how we feel that this system, does it work in multi-storey ?

Chen Xiangyang: My answer is definitely OK. I installed the toilet in Beijing hotels 2006, which is the 7th floor, 8th floor, can draw air from the basement. for customers living in the basement,7-8 people for each day, three years, you can calculate the number, many people have become a frequent visitor. They lived in this place, and some live a month or two, which is verified after three years in Beijing. Also in Ordos, we have a unit installed inside the four toilets, with a few months, up to now to prove that is also very effective. Unfortunately, I was the first Chinese person to see the dry toilets in 2003, our company to help them to open the mold, I have come too late, if a year earlier to put our toilet filled to the Ordos, may now come opening celebration of the.

Zhu Tian-Le: First of all odor problems, from a technical point of view, certainly can be solved. That technical issues can certainly be resolved. But the most crucial is to say, under what conditions, on how much the cost to resolve. The second question, such a technology, what occasion is used in? For example, used in different users, the user's awareness and knowledge, as well as awareness of the issues the case of uneven, its applicability to give you a standardized operation, and in some time to resolve, and in some time can not solve.

SUN Li-xia: The question very well, if one-year extension, the district will be retained to the toilet? I think it impossible, unless change the location. Can we promote suc system in other places, yes we can. But there must have improvements in technical, just like a lot of experts and professors have said, those proposals, technically do further improvements and testing, and selection area, select crowd, choose this nature, I think it is entirely possible to promote it, but in ORDOS, I do not think the possibility.

Li zifu: I would simply say something, I have visited Germany last year, they are using a composting toilet, similar to us. There are four to five storys , the people who

live in that district first of all to accept this system, but not every household used a composting toilet, there are a few households that use water flush toliets, it is a voluntary selection process . This is very important.

Secondly, for our situation of Ordos district, one is that weather the floor is infinite? I think this is to be considered, according to my discussion of German experts, he believed that is a limit of about 10 meters, because I was not able to prove, but they do have an experience, most people inside that they are three to four quarters, which is the highest, as if there is a five-story kindergarten, but I do not have the specific detail to confirm. In particular, in Ordos district, the four people's ventilation ducts go together, and its partial pressure and balance control is very difficult to do. this we have to consider in practice.

【Moderator】: With regard to zifu and director Sun just said, I want to say a few words. Like Madam Sun just said, we just asked the question, this is a question of social acceptance. The social acceptance is the foundation, this is our next step will focus on. A series of discussions have done this morning, there have many aspects are related to this point. We want to focus on this issue when we back this afternoon. Thank you for your enthusiastic participation.

December 7, 2009 – Afternoon session

【Moderator】: We will spend an afternoon to discuss the social acceptance issues. There have numerous references to its importance this morning, because a reflection of the user and the user's practice are really the final proof of the system.

I'll give you a little background information for all aspects of the problem. We have done a lot of research these years, now I'll show you the results. Households in the community are aware. A young Ph.D., University of Cambridge PhD, had done a investigation in the community from April to May this year on 99 households. This is her findings, not all of her findings, the findings are in her report. I chose the parts to give you as start for the beginning of the discussion of social acceptability.

When asked the users about the benefits of dry toilets, we can see that for 44% of the people gave no answer to this question, in other words, 44% of people do not believe, or did not know this system is any good. 30% of people considered it is water-saving, 15% of people do not see any benefit. There also have large number of some other aspects, which I don't talk about it here. Now we'll talk about the dry toilet, about the user's reflection. What is wrong with it? Almost half of people think that the main problem is the smell issue. Odor can not be accepted. Another 18% of people think that using it is inconvenient. And 11% of people think it is very difficult to keep it clean, and its very difficult to clean. Very small number of people is talking about blockages, not clean, etc., only 3% of the people did not answer this question. In the scoring survey devoted to water toilets and urinals, 9 score is very satisfactory, very good, 1 score is very bad. We can see that most of the recognition for toilet is under the lowest level, which is almost 2,1 is the least recognized, almost 2. Just as the questions we asked this morning, what improvements can be made to make dry toilets accepted? What we can see is very interesting: that about half of the people think that there is no hope. 30% of the people, here is the number of households because it is 99, almost 100, so with similar percentage, 33% of people think as long as there is no odor it will do. Therefore we think the key is to improve the smell. Also 15% of people think that using the sawdust is a big problem. They also hope there have no bowl inside the toilet. Half of the people think that they completely have no confidence on such thing. Another 33% of people think it is mainly the odor problem. Finally asked about the reasons for which of the system you are willing to choose?

96% of them choose the flush latrines. 1% of people are willing to select dry toilet system.

Will you recommend dry-composting toilets to someone else? 87% of people think that they would not. Only 8% would recommend this system to others. All in all, I just chose a few of these questions.

In conclusion, for social acceptance, the approval level about the dry-composting toilets in this case is very low. They will naturally be a problem, why is this so? We believe that there are a few possible explanations.

The first aspect is that people do not understand this system, they know to little about the system. If this is the reason, perhaps the public awareness and education are not enough in this area .If we do better and more thorough training ahead of time in this aspect, the outcome would have not the same. The second aspect, these dry-composting toilets in the Ordos region are culturally difficult to accept. There are many examples of this, households feel very embarrassed, very shameful. For example, your friends come, and they feel inconvenient to use the toilet, and sometimes the odor make them more embarrassed, you also have to explain to others how to use it . Therefore, they feel ashamed. Another reason, there is a common understanding that flush latrines are more modern than this. This thing is not very modern. A third possibility, also discussed this morning, that may be the lack of consciousness and there also have some gaps on culture. But the most important reason is that our residents, our customers of this system, lost their trust and confidence. Our community acceptance, just given you in the April to May's findings, was it at the beginning of this project like this? The answer is not. We have also done some survey in the previous time, before the International Congress opened in 2007. We see clearly that this acceptance in 2009 is much lower than that at that time.

This involves several problems, the first question, is it the residents do not understand, do not accept this R & D projects? On the one hand, they have not fully understood, on the other hand, in fact they accepted. I personally think that the residents of the Ordos district have great patience in the beginning when we explained that it was an R & D project. The trust and confidence's loss has a process. In this process, it is closely linked to the speed and performance of our technology to solve some existing problems in the system. The first time you tell them, that the systsem thas a problem, but we are doing research and development, we were able to solve. Most people are

still able to accept this. When the effects resolved for the first time, people lowered their confidence. Maybe two or three times after that, there will be no trust and no confidence anymore. When we feel it has reached a critical point in our district, which has a number of reasons, for example, Arno Rosemarin referred to the winter of 2007, is a rare winter in Ordos, which makes such a system's problem enlarged by the issue.

The last category, we discussed a lot this morning, should I say that dry toilets in the Ordos, in this particular climatic conditions, in such density, multi-building, in fact do not meet the standard. What I have just introduced is an introduction of the social acceptance we'll discuss this afternoon.

Here we mainly want to make a panel discussions, so that we can fully exchanges on this issue. Before the panel discussion, I would like to invite Teacher Shen, to do a presentation to you in the Assembly. He will tell us about the views of users of this system. After then we'll be divided into groups to do further exchanges on these issues.

Shen Zeru: In order to better understand some of the problems below, I I'll give you a presentation of my personal background. I have done laboratory work in secondary school over 20 years. I moved to that district in autumn of 2006, I was there at the outset to use this toilet. Additionally , I am not in a very good physical condition, I made a cardiopulmonary function test checks in Fu Wai Hospital in 2006, then received the result of mild chronic emphysema. At the end of the experiment in 2009, I came to Beijing again, in September- October. I also did a lung function test, and the result is severe emphysema. Of course, the situation now has an interest to all the other factors. Yet, this toilet is one of the reasons. Of course, even without this toilet, I may also have the disease, but it also increase, and the toilets smell may be a factor in aggravating.

This is my report of a Committee on behalf of the owners.
First, we think it is correct to chose dry latrines in the general concept. For the region, the general concept is correct. Therefore, people in this area have been a very supportive in the beginning. Even I have this situation, we have always supported the toilet. On the specific performance we have been constantly put forward our proposals on how to improve this thing. This time I bring forward a special technical solution, which - in our minds - describes what kind of the toilet should be there, and how to improve it in whole. Regardless of the success or failure of the toilets.

Though now it seems they largely failed, but to the residents of our district, we still feel grateful for that project to the Government and to Sweden. We are indeed grateful to this project, what the specific benefits this project has brought to us? The first one is, that the green area of our plot is relatively large in the Dongsheng area, we should say among the best. Secondly, the parking lot in our plot is relatively spacious in Dongsheng area. This is an objective thing left to us. We should thank the Swedish side and the district government.

Another one, like many scholars, like Professor Zhu Qiang, they worked hard, we are very admirable to their spirits. If I could go to foreign countries, I might not do so. They come from so far country to help us and seriously work in this area. For this spirit we are full of admiration.

As factors or the failure of this project, we sum up and that is roughly three points. (1) First, the odor problem. The Odor problems we just have already introduced. Parts of the household usually have some smell, but it is not so very much, and can also be tolerable. However in case of a strong wind, or rainy weather, or powercut , we can not stand. We have to open the windows for the distribution of this smell. Swedish experts have come this year, they've been to a few apartments. The smell is powerful when opening the door, and even more serious in bad weather especially in windy days. Under the usual weather condition, there are basically without any problems. There also have been a small number of customers without any problems at any time. But this two groups are a minority. The middle is the majority.

The second problem is the inconvenient use. This involve technical issues, for example, it’s very difficult to add sawdust powder. Basically it does not last for long. Our family has not used that thing, it does not go down, it does not go automatically down. You use the clutch, plull it up, and it’s too inconvenient. There are health problems caused by the corresponding, sawdust disinfection, especially women, easily lead to infection.

The other is our living habits. When your relatives and friends come, you have to tell them how to use this toilet. I tell them about how to use, people are not happy, a lot of people think it’s too trouble, so they do not went.

The third problem is what actually caused the problem. Last year, the year before this one, because the money came from the government for this project, there is no problem, or they are not aware of this problem. This year, it has been handed over to

the district government, and the district government did not explicitly say how high the cost burden of this project is, whether it is free or not. If we had continued to go on sharing, household sharing continues, it becomes a big problem. Although Ordos is not so poor anymore, many people are still reluctant to accept this issue, why they have to spend so much money for use the toilet. When there is a comparison to the waterflushtoilet, why I spend so much on the dry-type toilets, many people are not willing to accept. So this is the last reason of the demand to changing into water-flush toilets. Some people say it is a good toilet, why even they want to change? Because they expect the burden of future service cost, so even this part of people have requested the change.

In addition, some of the details of the implementation process is also one of the factors why they want to change the toilet. For instance, we believe the technical staff and service team targets do not match. We have 44 buildings, 832 household in total, so there have 208 households for each person according to a group of four. Within the same households some smell, some do not stink, and some have foul inside, and some do not stink nor is it completely foul, but also the same location. Technically, from the climatic conditions, all should be the same. So I feel a little more investment in technical staff is necessary, who is able to solve the problem a bit better. And stink of the family we believe that this can be done. But they have done a poor job. It has not been resolved in the past few years. As we speak, in fact this is the plot focus. Each family has a ventilation machine this year, so there is normally no smell, but it still does smell during bad weather.

The third problem, the residential mobility is relatively large. This issue was caused by many reason. Many residents come from the rural areas and rented here. Some said that the toilets stink, so they just sold their apartments. They are so many residents who came later, and they are not aware of the project. They know little about the obligation and what right they have. So they have some less information, they are less clear, and have cognitive misunderstanding. I have participated in several meetings, and there are a number of residents who do not speak politly, so experts from Sweden feel embarrassed.

Second, The service is not in place. There are some problems, we also refleced, and is not solved in time. But when the old problem can not be resolved, the confidence went down and down. I went to the end, we unanimously requested the change. We

have smell for three years, and it is enough, we do not want to go on. Who knows when it can be changed for the better? Perhaps the three-year period is not enough, maybe in four years the change is not good also,what do we do?

There is involvement on a voluntary basis, we have suggested a training when introducing the toilet. We had exchange of views with the experts, he said that we recieved two sets of the original. In the case it fails, how should I do? I change into water flush. So since it has been designed in such a way, there are some special smell of the households, or some families are unwilling to accept, we can change it over early, so, for the problems reflected by these people, or dissatisfaction, you can push a push, in particular, make the powerful group of people a little stability.

In addition, I particularly want to talk about technical issues. On technical issues, I personally think, from the design on the whole system are the problems emergening. What place is the main area of problems? He stressed the need to improve mechanical ventilation to solve the odor problem. In fact, we feel, it would be a better way of using natural ventilation. The possibility of natural ventilation, we learned to understand. In the Fifties and sixties, Baotou had a unit which used coal briquettes for cooking. The gas emissions are also able to go out, and did not have the fans. I have tested in a unit of Building 5, with the pressure pipe cover, the fans would not use an exhaust fan, and most gas is able to emitt. Therefore, the focus can be placed on natural ventilation. There are several advantages: First: energy-saving. Second: the noise problem can be solved. Third: the cost can be resolved. With mechanical ventilation the smell and costs will be higher, and they will also have noise problems. Additionally the cost of equipment maintenance will be more complicated. Even besides the focus on natural ventilation and mechanical ventilation, we believe that is a problem of the sealing. When we increase the sealing thickness and place the Toilet mouth on the right place, and then hold the ring down, it would be like a pressure cooker (electric rice cooker). So in this way we can control the pressure. basically do not come out, this can be solved, the problem is to seal on the mouth, on the issue since the seal on the mouth, when we do not use the toilet, we can do not have fans. This is certainly possible to do. When using it, according to the experience of cooking, we can use the fans in windy days or auxiliary fan when the weather is bad.

In addition, some technical details, such as the addition of sawdust is impossible to do . The sawdust itself is not smooth,. Is it a design problem or processing problems? I do not know, but all in all it is not very convenient to use sawdust. Another one, like the urinal, it is waterfree, we feel a little bit behind the times in this issue. In terms of Dongsheng area, other households use pressure flush, and some also use infrared sensors. But we had to get a bucket, get a spoon of water, this way we feel very backward. I wonder whether it can be advanced a little? With regard to this system, because I may be lazy, I just designed a system to automatically open the valve; water is washed away when I left. I have study a long time in this thing, and have applied for a patent; it can do this thing well. That's all, thank you.

【Moderator】: Thank you, Teacher Shen. We had started from 2:30 to 3:30. in addition, the Leader once responsible for project management and communication between tenants as an expert in this project for some time, will use a few minutes to share some experience with you.

REN Lian-Na: Because of the time, I will not speak broadly, I will read the title and points what I wrote for everyone.

I have a deep affection for this project, so I am willing to exchange views with you. Dry-composting toilets supports in the core energy reduction, and energy reduction is the theme of today's world. I think the project is a good project and it's promising. Let me give you an example, such as we Chinese have a saying,: when you are ill, its better before medical treatment to have prevented it, and than there is no disease at al. We can compare the same with this project. As we all know, Erdos is a serious water shortage area,. This project is a project we are more aware of. Now the system might not have a very high importance, but in the future, it will be one direction to change to dry latrines.

Why did the owners not accept it? I would like to repeat several reasons. Because it is a conclusion, so an analysis of the reasons, there is no right which a duty to pursue, nor that the right to say wrong with it, please correct. One of the reasons I think is the traditional customs, cultural cultivation, in particular it is very difficult to change the concept of the traditional sticking to old ways. For example, dry toilets, the toilet has extremely strict requirements for water - water is a taboo- but the owners sometimes compare it with flush system and he said that this toilet technology is backward.

Secondly: the construction quality is poor. A district resident rely on our government, he is demanding to see the mayor, calling the mayor's hotline, stopped leader in our district half-way. we have done many services. He basically wants to use the toilet, but the odor is still lingering. When we made efforts to identify the reasons, we found that the ventilation ducts have been blocked by construction bricks.

Third: on-site work is not timely, the demand of design and construction skills are not complete.

Fourth: the project scale is too large, it should be small and good. We can make large-scale promotion after a success.

Fifth: information. The residents talked about the false information by the developers. for example, the plot in the excreta disposal by conveyor belt to easily spread out, so they should buy this house, but the reality does not match the advertisement.

Sixth: the most fundamental reason is that the ventilation system is not good, smell and noise are too big, There are apartments which have smell and noise at all times, especially at night, which affects the normal rest. The great smell and noisy are the strong opposition reason from owners.

The above s the understanding of myself of the status quo, but it is not comprehensive, nor correct.

Looking to the future, with climate change, the water will become more and more precious. The national emission reduction target of 40% will be known to the world public. I think that in the near future, will gradually phase out latrines, and it will become the world's direction. Central government will increase the intensity of energy-saving emission reduction, and this is a good opportunity for us. I suggest to promote the dry toilets, we should insist on a further study of dry toilets and refine the project at the same time. P.e. Use of ventilation and using natural ventilation. Wind energy can generate electricity and also produce good ventilation. I think it is feasible, but still scienctific and technology application problems. So, if there is no noise, no smell, the people would gladly accept it. If the project will be implemented again, and needs my support, I am willing to cooperate again. Thank you!

Ina Jurga: I have only one question to Mr. Shen. You have to pay some fees from the beginning of this year, so what fees you have to pay and how much?

【Moderator】: You mentioned that the during the handover process, the residents began to consider the future, and now , they do not have any fees required to pay, right?

Shen Zeru: It had been paid by the government and project previously, we have no direct cost burden, therefore, this problem has not been too obvious. During the handover process in June it has been decided, that the government will not cover the cost, the entire burden will be given to the residents, and this is a great amount of expenses. And it will be more than the water-flush-system. We know that the eco-station will cost about one million this year. 1 million fee, and say of 1000 households, we had to pay 1000 Yuan each household.

【Moderator】: This afternoon we will have group discussions, we will divided into five groups, each group consists of 7-8 individuals.

【Moderator】: In case of we had a panel discussion, we were a little bit worried. I feel in the form of group discussions is better, evidently a team has a better form of communication. Next we want to spend a very short period of time, each team has a note taker, a persons who will briefly reports some of the points of our discussion. First call Arno Rosemarin, he was in my group, but also the smallest group. we had five members including Teacher Shen.

Arno Rosemarin: We mainly interviewed Mr. Shen. In fact, we listened to what the Teacher Shen said. He gave us some description of what we call the main ”tipping point”, it certainly can not return to the origin of such a problem. There were actually many steps, that lead us to make a decision to return to the use flush the toilet. the first time, we are all buying a house, we were very trusting, but also had very high expectations. They all believe that technology came from Sweden; they think this is a very well developed technology. In 2007, when we opened an international conference, 500 people attended the meeting. The world is very interested in this project, and this is a research and development project, they are also experience as an integral part of the exercise. They not only shocked, but they believe it is the world's largest project.

In fact, with the weather in 2007 and 2008, the extreme cold weather conditions influces this technology f this project to have adverse effects. Our project is the world's largest research projects. It went to the roof ventilation activity is the result of

gray water, ventilation system freeze, and then there are some other important factors. In 2008, we did some discussion. Project handed over from Sweden to local governments, while each household has to manage on their own. The international side would not continue to manage, and the households may be responsible for maintenance costs. They think the Government will not take over these costs, nor will not pay the costs. So this is one of the factors in 2008. In fact, the transfer was implemented in 2009. hey made a decision to use the traditional flush toilets, and this is an evolving process.

There are also some problems in this system, even if it is perfect, actually some people will not necessarily accept it, because there are maintenance cost issues. From a social point of view, we have to consider different people, such as the elderly and so on. They were farmers, they are not people who grew up in the city, and so they are very sensitive to the economy, sensitive for the cost. Then for the young people, they may be willing to pay the additional costs, but the elderly are unwilling, because they do not have the money to pay the additional cost of dry-composting toilets. Therefore, this R & D projects, this is actually a number of fatal factors. Therefore, this project was completely stopped, and changed direction.

Our group discussion concluded that the worse of these factors, were primarily the cost, the collection of faeces and the maintenance costs. The Government is already investing into solid waste and sewage treatment. Then these additional costs may not be accepted by the local government. Therefore, the families do not want to bear their own costs of this part. There is a problem the owners are concerned about? What you have is this set of rooms, or the toilet? In fact the system itself can not have any responsibility, in fact the whole government, that is, the state, should bear the relevant responsibility. How are dry toilets? It is actually closer to the user, so the user will naturally pay more and it saves the government money. Of course there is no policy in this area, and may be a transfer of responsibilities. Our policy has been a problem, that is who should be responsible in the end? Does the toilet itself leads to this question, is the system itself leads to problems, or what kind of problems? In general, the residents might be more willing to pay the cost, but this mainly depends on its quality, its standard, that is, the system quality standards.

In addition, we were also concerned on the water shortage problem. it means not only in Dongsheng, as well as the water shortage issue in the Ordos region. The problem is

how to do in the future? If the water will be more expensive, fewer and fewer, but more and more problems without water, then how should I do? In fact, we are now back to 2002, then a very severe lack of water, most of the time without water. From the perspective of young people, young people would be more concerned about this problem, but the elderly do not believe that running water is a problem, because they are older,. The price level is still very cheap, perhaps the future is wil be a problem.

More interesting is, why do we need to do this project? Water supply is much better than in the past, of course, everyone thinks that there is enough water, and not expensive. This actually is a very deadly factor,. The water is cheaper than more than six years ago. What could be our incentive? For example, invoices, if they have dry toilets, then give them some tickets for free to take a number of vegetables. Organic vegetable production is enjoyed by the rich people. ,For the average people, they cook regardless of the organic or inorganic.

From his point of view, he cites an example from the motivation point of view which is encouraging, and we (SEI) should maintain costs, households can cancel the maintenance costs. He suggested that we come up with a package of programs, including maintenance costs. Of course, this depends on the specific circumstances of each family set.

Let me repeat the solutions on the institutional set-up. Such projects, if successful, the project should have this set up, such as enveloper, and then sign a contract to lease it. And then households decide whether to live and not live, lease or not. Of course, like this project, it is not easy to do. This is a more crucial point. There are appartments, there are many car parks, there are a lot of green spaces, and this is a good place, so the value of the project will rise in the periphery, because the level of its green areas, parking lot. This is most of the problems what we discussed.

There is also a problem: they are not sure what would happen in winter. The new sewer pipes, they are too small. In the basement, how will the temperature affect, what will happen in winter, we have considered whether it will freeze or not? We currently have several residents over there, so there may be freezing cold nights. We are not clear and specific what would happen, but some people have such an idea, there are some concerns.

【Moderator】: Thank you. We continue with the next group.

Ina Jurga: We are the first group. I want to introduce people in our group discussions, SUN Li-xia, Lin Jiang, Peter, Chen Chi-Kun, as well as Wei-Wei Zhang. First of all , we found that we discussed the social problems, but the technology is integral with it, so the first point, social and technological issues, which are related, can not be separated. The second point, we all agree that we have to take the long-term concept into account, this idea is good. But we also need to consider the status quo in short-term, that is the management and operation issues. We have a baseline to start thinking about the issue, that is, the project should be properly planned out. We also believe that the toilet should be more convenient, and its function is better, but there are some other suggestions, this proposal, I am not going to say.

The first recommendation, we need to raise awareness. We have to have continuous, professional public relations and education. This work should be done by a local person, using different methods. For example, we went to the scene, there are some other ways. At the same time, we also need some people to work inside, because the mobility of the residents is very great. Meanwhile, at the beginning of time, for example, 10% of people want to buy a house, and then let him to become an education champion, and continue to make better use of a dry toilet system. There must be a very good education and training team, we must have a place for the type of training. Sometimes we know that this is not very easy, for example, to find a person suitable for job is not very easy. Meanwhile, we hope that the whole team has continuity, which we do not observe at the local project. because it is on the interface between the world's advanced technologies and local, this is also a problem, now we do not see a very good convergence. There are also capacity-building, we hope to focus on. The third point, also discussed this morning, and we need to have the right of targetgroup to use this dry-composting toilets, we have found, for example, we mainly rent rather than the sale, as well as we talked about a lot of costs, we will return to this issue later. At the same time we have a continuing education process, this is also very important.

We hope it will comply with the principle of cost-effectiveness, that is, the cost is not too high. Finally, I would like to mention is that we should give people a choice to enable them to know, so they can choose if they want to move, or do not want to move in, they are not being obliged to use these dry-composting toilets. So I think we should allow people to be further informed, rather than blindly accept a new

technology. For these peasants are concerned, it is a very new concept, not just the separation of urine and feces out of the concept, we need to educate them on the concept, so that they can be ready. That is what our group discussion. I do not know whether I explain our team's claim clear?

Jenifer McConville: I would like to say a few words on behalf of Group IV. of course, we also talked about the same subject, but at the same time we would like to say, we know that residents are aware of this new system before their arrival, They had patience at the beginning, but later they found more and more problems, we know that will take some time to fix, they waited patiently until a good solution. But the biggest challenge is dragging for far too long, and there are too many problems, such as technical problems, there are many economic and technical discussions. We also discussed a number of technical issues and technical feasibility this morning, when we discuss these, for example, how do we seal the ventilation tube, such as its reservoir septic tanks, etc., from a social point of view, it took too much time to solve this problem, so people are losing patience, so they began to conflict with the system and eventually become very impatient. And gradually intensify, three years are really long enough. They do not want you give them three, five or ten years, we do not know when it can be repaired, so they do not have such confidence and patience with the project. Of course they want to improve the quality of life, especially when invest the money to buy a house. If they have been affected by these problems, they certainly have a lot of complaining, so they no longer accept dry-composting toilets. And we ask them, for example, what kind of toilets do you think are better? They said that they hoped it looked very pretty, and very convenient, whether from the cleaning, from the use or whatever, simple would do.

We need such a toilet system, it has a very good quality, while providing a good cleaning, this is one of our explanations, and we need technology. We also discuss about our final product, for example, how do we do for urine recycling, turning waste into treasure. The recovery of urine and feces is not OK, because it contains too much sawdust, it can not be directly used as fertilizer. As well as urine separation, this technology is very low. Our whole ecological behavior is a good concept, but when facing the reality of implantation, it is not so satisfied, this is what we have not talking about yet, we are generally talking about the quality of the system itself. There is

still the final product, in terms of how to solve these problems, tomorrow we will talk about these issues.

Attila Weibel: We did not discuss the technical problems, why it is that technology ultimately does not work, failed. We are mainly discussing the following points: first, they (Daxing, project?) do not tell anyone this is an R & D project, they put it into a cheaper place, sold to users with cheaper prices. When he households use this toilet the first time, they do not know theese are dry toilets, they do not know how to separate these things. They originally admitted to pay so much money, not expensive, but they did not know hey were part of a pilot project and information is asymmetric. However, they found a lot of issues when use it, such as there are flies, odor problems. Some tenants do not feel that odor is a big problem, but some people of the plot constantly discuss this issue. About this kind of toilet, we've got a problem, then there is a phenomenon, they found more and more problems, and they will gradually magnify the problem. No one person, for example, there is a discovery of a problem, he said it smell particularly bad, people will find resonance effect. This is a negative impact. In addition, we have some real technical issues, and something is not very satisfactory. For example, the maintenance workers, they did not receive adequate training to complete the work. Households complained, but they do not have the ability to resolve these problems, and therefore caused their relationship to be strained. This is why they face the new system, they felt that the system is good, you can save water, can be environmentally friendly. They patiently wait for the start of the system to work well, despite some problems. They still wait patiently, but after three years its too long, and people found more and more problems, and this problem is being gradually been strengthened. Finally they reached an intolerable level. Of course, education team did a lot of work. There are a number of social workers, educators, advocates, he started in a friend's way of telling people how to use, then it becomes a kind of didactic style, like parent education to children, people started to do not accept the education.

Zhang Lingling: Hello, everyone, this is a result of the fifth group discussions, I have to do it in the PPT, and this is the only group of Chinese to explain the outcome of discussions. Because the time is relatively tense, I may be not as logical, I hope you will forgive. Our first results of the discussions, we feel in the very beginning, it is the lack of adequate communication. Why? First, we feel that there have been given

misleading information. This misinformation is reflected in the developer's brochure, written that Sweden is promoting the introduction of advanced technology. We pay more attention to advanced, then technically there is no much attention was paid.

Second- we all feel that had not been told that this is a research project. we understood there is an advanced technology, it is good, because of the selling points of this as one of the developers, we think this is very good. From the user side, the first user think it is a very reasonable price, it is relatively low with the same period in terms of similar sites, and the developers gave a very good selling point, Sweden introduce advanced technology, so users pay less attention in this aspect at the most beginning and signed recognition agreements. This is the lack of adequate communication.

Another problem, dry toilets maintenance issues, first of all the specific maintenance issues. Such as urinal maintenance work are complex and require regular cleaning, and cleaning is difficult, you have to use hand when it is very difficult to clean. We find it very inconvenient. Because we told them to use vinegar during the training, so it followed by the cost problem, it would be expensive. There is another problem-unpleasant smell, of course, the odor is not there every day, but it does exist. Of course, we have property services, there has staff to help solve this problem. Maybe the first day and the next day without smell, but from the third day began to stink again. Its only a stopgap, and no cure. There also has been a urban expansion problem. We planned it is a plot, it is not in the center. But it soon became the city center, surrounded by many communities, which use water type toilets. There are costs involved, we think the expensive one is to use sawdust. Whether you take sawdust or to send sawdust back, all costs, as well as dry toilet maintenance costs. Another cost is to use the ventilation system, which included electricity costs. So we generally think that water-flush system will be cheaper. Of course, this will take water charges into account, and now the water price is not high, we prefer to use water. Another problem is health issue, they feel there have health risks for using sawdust, there are some hidden dangers, especially for women. There is an idea, we discussed this issue and we think that dry-composting toilets are not modern, it belongs to the rural areas. This compost should not appear in the city, especially in the city center, and then use the compost for urban center users think that this is an outdated concept. We talk about the outdated concept, and then discuss what a modern toilet is. But with reference to UDDT, we have previously used aqua privies in rural areas, and then

progress to flush, let us go back to dry toilets, we think it cannot be understandable, so we feel that UDDT is a better, more modern toilets, of course, but is also costly.

Of course, we also discussed if the dry latrines cannot exist in the city, so where it can exist? On the possible existence of dry latrines, one is in a number of world heritage areas, areas in need of protection, as well as the National Nature Reserve for example, there are some less developed areas. We also discussed the water to deprived areas, but did not reach agreement, we do not write here. That is the outcome of the discussion group. Other Members can add some, because what I write is not sufficient.

Zhu Qiang: Just now, Lingling say this is everyone's opinion, in fact it is the views of some members, there are still a lot of members think there is no link between the modern with the dry toilet. I'll add some, Professor Zhou, Tsinghua University, he was doing economic analysis, when comparing a program when adoption of feces and urine separate flushing toilets, and water reuse, the cost of significantly higher than dry toilet, but in the final report, it does not seem to write up. It was also mentioned in the morning, sustainable development, ecosan systems, need not necessarily be dry, and it can be water , but as long as it meets several criteria, such as environment, health, cost resources, recyclable, etc., these principles can be met, then dry or wet should be treated equally.

Zifu Li: It may not be UDDT, it could be a waterborn sytsem.

Madeleine Fogde: thanks Ling-Ling who gave us a summary. I think she has more or less sum up our discussion, we have a very good group discussion, members are very active and made positive contribution. So thank you for your participation and shareing your experience. This is one of our conclusion, so perhaps you do not agree, but it is everyone's collective wisdom.

【Moderator】: We had two parts in the programme schedule, one part is to discuss sustainable technologies and social standards. In fact, we have been discussing this problem the whole day today, the summary of the various groups, I think reflect this issue in many ways. For example, from the time of speaking, we must consider it in the short term, like this morning Professor Zhu Tianle mentioned, in the short term through a high-intensity, high input, whether human or financial resources, can maintain such activities, from the long term, this system is not a sustainable system?

Sustainability criteria for the system, technically speaking, it does have short-term and long-term problems. Similarly, we can say from the economic point of view of the system, it is necessary to continue, but then it must be economically competitive. Of course, maintenance, etc., that is, to maintain the system in condition. From a social point of view, there are a sustainable standards. Today we heard a lot. In my personal opinion, we have too much to consider in the less developed areas or for low-income people. I personally believe that for sustainability criteria, since we think this represents the future direction of a system, we should think that for such a system, there should be a certain degree of universality. Then in the future, in the view of a transformation in this area, I think it is a sustainable solution. I think that may well be a factor in the concrete implementation of them, but when we discussed sustainability criteria, I do not think we should have such a distinction, high-income groups use; low-income people should use such a system. From a social point of view, I think it is a sustainable system.

Culturally speaking, it is the same. Any of our systems, that is, the factors of culture should be fully taken into account. Of course, this has to achieve technical and social sustainability, which also involved the whole discussion, from the design, planning, to the people's behavior changes, everything. All sectors need to do some effort. The last one, we have a summary of the discussions of today's tomorrow morning. So I think a little bit not fair, so that Ina Jurga, can concluded the day today, so in the end a summary of the first day, will be to tomorrow morning. The remaining 20 minutes of time, I would like to discuss the issue from the technical, social and sustainable standards of the system, everyone is freely again.

Jenifer McConville: I would like to remind everyone here, about our results. The results of the workshop are actually going to make recommendations for future projects, so I think we are discussing today a lot of on the Ordos situation, and on many of the circumstances of the Ordos failure. But I would also like to consider, let us mention some of the key recommendations of the discussions developed from today and sum up. Ff someone asked us if we want to do a multi-storey dry-type toilets, what can we say to them. From the user's point of view, what we have to think, then we may make recommendations to others.

Ron Sawyer: our answer, we have done some discussion. A very important point, i have a feeling. from the social point of view, from an educational point of view. that

this very important project is a vertical project .The process is a start to educate users, to let the user understand the advantages and benefits. But we have not formed user groups to enable them to share their experiences to understand how we have kind of this project can be improved. Of course there are services, but this is vertical. The feedback is not good. Our customers want to form their own team, a group. They think they need to have some word in this process. Therefore, in the course of our discussion, we also raised a question, it is also very important. We need to consider these procedures. We have a problem, how much does everyone knows about the system in the end? For instance, we have to further clarify- first a contract has been signed, between owners and developers, that they are not allowed to change the toilet system. In other words is that they are as an integral part of R & D projects. But they did not know that they are an integral part of a R & D projects, so this is actually very important. This is a ethical issues. If you are an integral part of the project, you need to do the investigation. The User is one part of our systems, but he did not know, so they don't know they have the right to interfere in this systems. So, first of all there is a problem, the SEI people have seen it, but also to understand the content of this contract, signed contracts, so we need to understand what they (users) know. Therefore, there is a problem that if we return to the morning talking about the projects in Germany nd Sweden, in a new project everyone is involved in. Their participation in eh recycling system, they is conscious. We should regard these users, they actually paid the money, so they should be involved in the project which, but we are not giving them enough information. People raised a good idea of the Ordos this morning, in addition to the ventilation there are some technical recommendations, but how they could to get involved in our projectsfrom the beginning? Therefore, we have to be more cautious in the future projects, which must be very careful not to be a single vertical process, but to participate in this project among the people, such as owners, they also need effective management.

【Moderator】: Thank you very much!

Lin Jiang: It may be not translated well to what I have spoken. I would like to add that, problem with the socially acceptance of the public has great relationship with education. Inside the entire project team, personally I think there are two critical flaws. One is the lack of a local technical staff, to master and absorbing the Swedish advanced technology.. Through this people's co-ordination, we know whether the

outside experts are right, the people who are aware of his environment and the whole situation. This is about the technology.

More important is the publicity and education, we do not have one person from start to finish, to improved relations between the stakeholders. This person is the key to the project. But from your team I have not found someone to act as this person . For any project in the future, this is my personal experience, you start this project, after which, because this is a new thing, usually the very active users are 10%,. Very much against it, are not more than 10%. The majprity is in the middle zone. If we have such a Person, we can explore and training to expand the impact of 10% , through the people's own self-education . Until now, we do not know where are the 10% we can rely on now? We do not have such a man, if there is such a man, I think this situation will not come to today's understanding and discussions. So this person must take up this matter , and act hopeless when it comes to resolve this matter. In general, if successful, their own participation of the area, this participation relies on that person to carry out the PR. So the higher the participation, the more positive side of things, he continued to enlarge the positive side, he refused to face, against the surface of shrinking. I think the attitude level is more important.

Roshan Shrestha: We do not really understood, why they did these things. They actually know the cost efficiency, they know some personal benefits. If you do not have these, they will definitely not work. So make a list of these benefits together. If there is better planning, to plan for the grey water waste disposal, etc., so that they do not raise problems here? This issue is a very important issue that is also associated with the project. These 10 % supporting your project, I very much agree with his ideas, this 10% of the people, they can as a leading champion to support you. They should be able to play a certain role, and will help to solve the problem. We can now see that the project had really no leading championship-style persons to assist you.

Madeleine Fogde: From our discussions, we have a very clear understanding about the cost-effective of dry-type toilets. Of course, itself it is very expensive to maintain if n its own. It certainly is expensive, because it has a costs. But when you are introducing the dry toilets, in the promotion of eco-cities, then you have to give the user some of the benefits. Now he has to pay sewage treatment fee, you can use this benefit, you can get support by the government and the state can save money too. these kind of incentives should have been there over the past three years. We need to

develop the system, because there are some areas of failure, such as technical failures, or on the costs. In addition we also need to take into account the cost of water. This could allow users to make a choice. Anyway, we need to introduce this dry-type system, it should be placed in a broader context, taking the cost of water and sewage costs into account, costs for governance, and how to give he user some advantages and benefits, this should give comprehensive consideration.

【Moderator】: I have just said before, there is one aspect. This aspect is you need to know the standard. Then the implementation of standards must conform under normal circumstances. Normally - in my personal feeling- when we discuss these problems, we quickly agreed to do this thing. Under normal circumstances, over a period of time. But during the implementation of some projects, such as the Ordos, we found out that these things should be done, but they did not do. Therefore, there is a problem, are there a number of different aspects of obstacles exist? For example, the standard itself, another aspect is the scope of R&D and technical complexity. There also a wider range of obstacles be considered, such as institutional and systemic barriers. From this perspective, I am not sure, and because Hidenori Harada will go tomorrow. I hope he can turn his views to the institutions and organizations in this respect.

Hidenori Harada: I have to leave tomorrow morning. As I just said earlier, this is a very large and full-scale project, though it has some problems, the technology can be improved in the future. While the person's consciousness should be regarded as implementation of the project changed. I would like to point out that this continuous improvement, and the increase of the continuous awareness, must be based on a very good framework for the building of institutions and organizations. From my point of view, institutions and organizations, are actually the source of the success to many projects, which may lead to success, but also may lead to failure, we have to further discuss this sector. This meeting will impact on technology, society and many related issues. Today’s discussion is very good, thank you.

Zhu Qiang: Han Guoyi talked that whether dry toilet could presently applied only to less-developed regions. This morning I talked about this point of view, that is, it does not mean that for sustainable development, is only suitable for the less developed regions. I did not mean that. But I think at present we should gradually improve the technology to implement these project if it’s not mature. About the population, if you

select population under the low urban conditions, even an ordinary urban crowd, I think it isn't realistic. If he is willing to help us to do tests to improve this system, the user may be our target. As his system is poor, we improve this system gradually. In such a transitional stage, I think it's better for us to consider this crowd.

Arno Rosemarin : I am very happy today, I must tell you that we have done two conferences in Ordos, and made two presentations, one in Finland in August, another one in Mexico. I got very positive feedback: all people from the field of sanitation think that it is a good way. They think there is a good prospect of this project. At the meeting in Mexico, the International Water Association, think that our technology is very effective and very promising in the health field. We now have a very big mis-concept; we have a municipal pipe network construction, which is based on flush toilets. It was stated, the U.S. need to spend 400 billion to increase gradually the pipeline network system in the future. This is simply unsustainable. Each old city in Europe is facing the same problem, how to update their network, and how to transport their waste and so on. Only few cities started to have a dialogue and a policy level to resolve these issues. So our project let everyone understand this challenge, at the same time we put everything openly on the table for discussion. This is a small project, but it is far-reaching, and we can go further. Some people say that there are a lot of negative things, and it has been hard, even insufferable for them to go through the process. But this is a historic process, and we participate in it, we also want to have some innovative ways to solve the existing problems. At the same time, we need to move forward at the provincial and municipal level. At the meeting in Mexico, the World Bank's representative was present. In his last slide of presentation, he referred what is the highest priority area in the next 10 years- It should be the water supply, which is the future development priority of the World Bank. In other words, it's only the beginning for our dialogue on sanitation. Our aim of this project is to take a look at what we can change, for example, the technical level, social level, the system level, the structural level. If it would be a perfect project, we can sit here and talk about this project well, but we might not understand why it's good. We may not have such a seminar; we are here today just in fact to learn some knowledge, to take a look at why this project ultimately is not very satisfactory. We spent a few hours to get on the main points by exchanging together, which is our very learning experience. We now have such a logic curve of learning. When we talk about this issue tomorrow, we will talk about the context of organization structuring, and will see more aspects on this

project. We also hope that we can gradually improve. So reports out of the project should be also very important, and this is part of our learning, particularly for organizations in China concerned. I am very happy we could talk frankly and open today. It's a good example, so thank you for you active participation today, thank you for all contributors. Thank you!

Heinz-Peter: I have two points, one is responding to what's Mr. Zhu said, the other is on what's Arno Rosemarin said. Mr. Zhu referred to SEI, which we should support. If we go look at the household evaluation of everyone views, and this is the 10% on top. We also participated in this project, and we have learned a lot. Not just the technical aspects, and of course it is an advanced technology. While in the implementation of the project, how to put ideas into action, this is learned today. This is not a technical failure, but a entire learning process. When looking to the future, we will be able to use this technology; just we have to choose a better area to implement it, this is something we can learn. There are many different points when we choose experience. The feasibility study is one key point from our project. There will be more successf for us in the future. When we do a new project, this will give us more experience, so we have 92% of t possibility of success in future projects. Because it's just a learning process for us, through the six-year project, we actually learned a lot of things.

【Moderator】: Thank you all for participating, I really want to continue this activity, at the same time I hope that we can keep speaking frankly and sincerely. Tomorrow, we still have one day to exchange our information, for the six-year project to have a better understanding. Thank you!

December 8 – Morning session

【Moderator】: Some people have left, include the expert from Japan. Today, we also have a very tight schedule. I think most people are here. Before we start, I would like to introduce Cheng-ping Huang particularly, sitting beside of Mr. Lin, he arrived here this morning. Cheng-ping Huang used to be one of the members of China Environmental Protection Foundation; he has been very concerned about Eco-san and the Erdos-Eco Town Project, and gave a lot of help for the establishment of the project, so we are very glad that he can participate in the discussion. The first section today is mainly focused on the organization and management of the project. Jenifer McConville had said it is a very complex project; there are many experiences in different aspects during the six years organization and management that has been discussed many times. According to our workshop schedule, I would like to invite Ina Jurga to make a review of our discussion of yesterday. After the review, there are some key note reviews and summary about the organization and management of the project. Then discussion in groups. That is the arrangement for this morning.

Ina Jurga： Good morning, everyone. I hope you all sleep well yesterday. And the meal was cheerful. I'll be here to review and reflect what we discussed yesterday. I think yesterday we also heard reports from different groups, and we will discuss it further later. Yesterday should be a very constructive, very rewarding day, everyone had put forward their own ideas fully; I would like to thank everyone for their active participation. Therefore, I also noticed that each of us made a very positive contribution for the success of our seminar.

I want to start with some theory, I will talk about what are the lessons we have learned at first. For instance, we should do this project in the process of learning and doing. We learn from past experiences to obtain the knowledge, the experience can be both positive and negative. And we mainly talked about negative discuss yesterday, but in fact considering that is a big project, it will certainly give us some impact on the future work. In particular, it will also lay a tone for our future discussion. Especially for the local community, in Erdos, as well as in China, that there would be a definite contribution to sustainable sanitation in the future.

This is my first slide, we talk about a lot of experience in this respect, and I elaborate it again. Sustainable sanitation is a concept, we define it as dry toilet system, and urine, feces separation system, so we were not talk too much about these technologies,

but I would like to say that all of us have stated our own views. Not only international experts, but also local residents know. Such a concept, sustainable sanitation, there is no problem, which is we have to do, and give special consideration to the future development and future water shortages, etc., especially thinking about water shortages, climate change in China, and even in the world, so we have a basis, we all believe that the sustainable sanitation is a general trend in the future.

We want to say, the dry toilet, it may be not be applicable in Erdos or in a very rapid growth of urbanized areas, but it not to say that the concept is bad. The concept of ecological sanitation, we have the successes and failures in general, not just eco-town in the Erdos region, we also have to take a look at what had been done in sewage treatment.

Here are some changes, it was also been talked a lot yesterday. Change are the normality, it will affect the project. The very fast process of urbanization, it is actually gradually affecting the implementation of our project. For example, the possibility of water we can get. As well as the Erdos region has been a marginal area in the beginning, but later turned into the city center. This very fast process of urbanization had an impact on the project. Another change, the change resulting from our residents is the project's target group .In the beginning we did not realize there are so many floating populations, and there are so many second-hand house buyers. Changes of people thinking and changes in social acceptance will take some more time. All of these changes have taken place. It should be said that it will make our projects more successful if we have better foresee in the planning, but we do it, and not well predicted these changes. So, we have numbers of problems later.

Yesterday we talked about two issues, one is technology, and another is socio-economic. Besides technology, we also talk about many social problems, because this project is not just a technical, but also deals with social acceptance issue. We have a very good idea, but just as some people talked about, that it is actually not only an environmental engineering but also a social engineering. Technology and social aspects should be hand in hand to address these issues, so not only technical problems but social issues should also be taken into account.

In the technology section in the morning, we said the following content. When Putting this presentation together, I found that first point it is not only relevant with our eco-san project. In fact this primarily should be a research project; it is not simply a

sanitation technology project. And some people are not particularly satisfied with the building quality. And also the local workers' skills are not in place. It is a very large project that we have no idea that so many users installed dry latrine at the same time, so from these aspects, it can also be an energy project for example.

From the technical side, we have explored so many problems. We can learn many lessons from here, for instance, we have some special technical issues, including the odor problem and sawdust issue, which were very particular technical details. But in fact, we are not involved to the toilet in detail or the sanitation project itself when discussing in technology, but discuss it on the higher level. Write all these together, I put it here, just as a statement rather than an expression of an idea, such as we will have some question based on this institution.

I would like to say two points, we do learn some experience, Arno Rosemarie talked about we will have now some very good working systems. For example, we will offer a more mature technology. We may not particularly clear if the water flush toilet will also not fail, who knows. After this winter, we do not know what will happen, what problems the water flush toilet may have.

Socio-economically, we talked about it yesterday afternoon, the point –of-no-return. For example, how is the people's acceptance, as well as loss of confidence in the technology? That is, high costs, loss of confidence, as the acceptance, causing people not accept this thing. If we have a project, we cannot be built it in Erdos again, cause people say you can do this project, but do not in Erdos.

When talking about the present problems, we should consider from the entire user's perspective. They have fully expressed, that is, they do not enter into this project at the beginning. But we have a household-based approach, for example, we should put the interests of household into the most central place to consider. We know that for these households, we provide services, but in the management of the process they should be responsible, their voices should be heard fully. They should tell the application to the surrounding community, managers, local and national governments in time. There should be having a good feedback, so it is beneficial for the solution of the problem in the flow of information circumstance.

In fact we use a vertical, top to bottom system, for example, from national to local government and then to the users themselves, rather than a bottom-up system. In this

case, the bottom-up would be more appropriate. So, it may also be a wrong approach. We hope to have a user-based approach. We should not do an executive order from top to bottom, it should be having a bottom-up system. How are we able to change the vertically top to bottom into a household-centered bottom-up system? In our decision making process, the user should be fully involved. When we face these problems, we should have the full participation of household, and can have a good understanding of each other. In particular, there should be a very good communication between each other; know what responsibilities and obligations you have. Each person have different needs, for the housing demand is also different, and we should consider what their needs and then we can meet their needs better.

Of course, they as buyers want to have a good, high-quality life, so when the dry latrines continue to go wrong, it certainly cannot meet their demand in this respect, and they look at what are the benefits for them? How do they benefit from this system? But we have to take a look at this user of dry toilet, how do they benefit from it? They know, for example, it can save water, it is environmentally friendly, but in this project, they did not get these benefits, the matter is our cost. We have already talked about earlier, today we will continue to talk about cost, but we know that tenants think it too expensive, no matter it right or wrong.

Yesterday we also talked about the last point; residents asked to return to the water flushed toilet, eventually make their own decisions, for the first time they do the decision. The second a bit strange, they returned to the previous system, and why? They had previously not used water flushed system, but now want to return to water flushed system, I find this very interesting. Socio-economically, this communication between us is also very important. If we want that a project has great impact, there needs to be a smooth communication and a good education for the users. I have heard a lot from our house buyers, the information they have is asymmetry, and they had never heard of some information. For example, a lack of smoothly communication between the maintenance man and household, we know that all the communication between the project partners is not very smooth. These are the cause of the problems that caused the failure of the project. And some parts of the project failure, that is, construction quality and raise public awareness. Yesterday, we have already mentioned, first we should find the leaders, and as the professional manner continued to do it in implementing process, and also to find project supporters to help you.

Ability construction should include people at all levels, not only local people, local government departments.

We just talked about stakeholders, in addition to technical issues and social problems and so on. We are not just concerned about the family, in fact there are many aspects involved in the project, responsibilities for different matters, play different roles, and we have different capabilities, also motivations are not the same. Therefore, such a loose structure cannot work. So, we should build the institutions and organizations. We should consider that in fact all stakeholders and the project management will affect this project, not only the family, but also these organizations.

The last slide content mainly what we will consider this morning, in addition to technology and socio-economics, the Organizational arrangements also need consider. Now we have noticed that a number of different levels of overlapping issues are critical.

【Moderator】: Thanks, Ina Jurga has done so a wonderful summary. Yesterday, the discussion has been very complex, the content was a lot. We can sum up and refine some things from it. Let's enter the theme of this morning, Director Sun will start the discussion about project management.

SUN lixia: I'm very glad that the Assembly arranged me to do a report on the implementation of the project in the Erdos district for six-year. Yesterday, I was quite pleased with the result; everyone raised a number of problems from all angles and at different levels, without reservation and expresses you freely, and conducted a very lively discussion. Ina Jurga just did us a summary.

Next, I will give you a report with eight points. First, I want to present the reason for introduction of technology. Technology Implementation in Erdos is an overall environment development trend. In the process to promote the construction of ecological city, followed the fast-growing pace of urbanization. The migrants are transforming the living environment, transforming the urban and rural land and so on, which also includes energy conservation and emission reduction, improve scientific and technological content, achieve water conservation, resource reuse, the of circular economy system, first of all in our region the water shortages are more serious. Under the background of the broad political environment, saving water, was made as a high priority for the work of the Government. In that time water shortage were serious in

Erdos. When Arno Rosemarie and his organization from Sweden investigated Erdos, the water supply in Erdos area, basically only for two-thirds of residents it was ensure and that one-third of the residents cannot be guarantee, fragmentation in the water supply. This is residential water shortage.

And the vegetation in barren mountains is not good, because it lacks of rain, and desertification is very serious. This is water shortage situation.

In addition, under the increasing standard of living conditions, toilet use in urban residents area had a bottleneck in connecting urban and rural areas. In the urban areas most family use toilet, but in Dongsheng district only 20% household uses it, about 500 toilets. At that time, the phenomenon of life was inconvenient in Dongsheng district, which was a small city with about 250,000 populations.

From the Perspective of urban development, in the urban construction process, the peri-urban areas are also dirty, chaotic and poor. In view of this situation, the government also had a very good idea a to build from the environmental and ecological awareness aspect. So in 2003 we started this project, the Government puts great importance to this project, and think that energy saving and emission reduction is a specific manifestation. When the SEI proposed that implementation the project should be in no less than 1000 households' area, then Dongsheng District Government specially developed such an area in accordance with the scale of urban development and policy.

In 2003, the planning are for 2500 households, implemented in three phases. At present the first project phase of 833 households have finished, and covers an area of nearly 19.73 hectares, we have built more than 10 million square meters. For the family's eco-san systems, the government asked developers to use dry toilet system completely. This system consists of a dry-toilet, an urinal, a separate urine collection system, and manure collection system. Our request first is all residential household use dry-composting toilets. Second, we want to achieve zero emissions with the technology. Third, waste will be process in self-contained system, and feces conduct composting, then will be reused in agriculture. This is one of our goals in that time.

After three years' construction, from 2003 begin planning, land acquisition, demolition, the construction was officially completed by the end of 2005.The families moved in December 2005.

Fourth, different stakeholders have different division and responsibility in this project. SEI is responsible to model the project on ecological sanitation systems, investments and gave all the technical guidance for Buildings 1 to 4. And also the compost and sewage treatment plant construction of first phase, all belong to the Swedishe side to invest in the building. Our government is responsible for the coordination of various parties, such as coordination with developers, relevant government departments, as well as infrastructure that goes along with the basis of technical implementation, and responsible for the green outer ring road, road construction, lighting, community greening, water supply all our government's investment. At the same time it was clearly stated in the agreement, the two sides agree that the government is responsible for the content of so many; SEI is responsible for technology implementation. We are both responsible for managing and operating, that is, each year each wil pay for operating costs of 25 million RMB, such as the wages of workers in the eco-station, eco-station management fees, operating fees, etc. Both sides are responsible for the training and education, research projects, promotion and so on.

Cooperation between the government and the developers is also very clear. The agreement requires that the construction of ecological sanitation systems are implemented according to the Swedish design. To ensure the dry toilet technologies, such as ventilation, sealing, are not allowed to change. In the construct process, government committed to relief part of the administrative charges, such as land transfer fees, planning fees, and other government cost. Secondly, the government is responsible for road network construction. The third is responsible for the preservation of eco-san system after the arrival of the residents, helping developers to normal maintenance. First, Developers shall adopt market-oriented operation, and the government will not participate in housing sales. Second, developers who built the house must adopt the feces and urine separation sanitation systems. The third is the planning district should have not less than 1000 residents, well public facilities, green area reach 45%. This is the protocol between the government and developers.

The sixth aspect, since the project is running, has been existence of different levels of problems. When did the problems occur? In the end of 2005, the first family there had some issues coming in the end of November, and then successive. At that time we do not know about this new thing and it is quite normal that new things have some problems, So SEI and we are giving active support to resolve the problems in time.

The Problems were real beginning very serious is the second half of 2007. In August, before the Ecology General Assembly, the problems have appeared very serious. Since we want to open this conference, we made multiple improvements. We require technical personnel to actively transform, do the maintenance, repair and increase the efforts, increase awareness and training efforts. Both side's select special pluggers publicize into household. Therefore, the General Assembly was finished successfully.

After the General Assembly, the two sides had a discussion about the seriousness of problems, and adoption of a number of proposals timely. An expert groups has been setup to make retrofitting to the district problems. We formally established an expert group in early 2008, including experts in here, Professor Peter, Professor Lee, Elizabeth and so some experts. So SEI has made a major effort. After the rerofitting, the effects of these households are particularly good, but why we do not have inherited? This is one of the main contents what I say today.

The concept of our project is good, our starting point is good, and our goal is good. Why is not continue in Dongsheng area? I want to say that, this year's June to July, the Swedish embassy also known the reality, and was very surprised. Realizing that residents will meet Tony, Anna was very excited and say that the site can not be like this, our meeting's pursers is to let ordinary people speak out the problem one by one. However, maybe we also have a responsibility. We did not report the state to the Swedish Executive in time, but we believe that SEI has offices. Problems came out, so since July to August changed to water flushed toilet.

Why the request for change into water flushed toilet is so strongly? The main reason I think is technology. Yesterday, we are not talking too much on technique. What is the core we want to put in a thing? You should have a foundation, a core thing. The core thing is toilet. Toilet system is very unreasonable, the Swedish staffs are aware that household use it for the first time, and have talked about the problems on mechanical parts, the spring breaks and has no spare parts. In addition we all know, the manure bowl, people get on to it can access feces, people stand it could turn back up, it has intensity. From the toilet to the basement, may be 50 cm, feces are one centimeter thick stick on the bowl, how to wash it was not considered, this is a big design fault. This is a core. No matter how much engage in the ventilation and sealing, you cannot stop the back of this flavor.

Aerospace University, Professor Zhu, who have improved and researched the ventilation system specifically, but the effect is still little. We mainly changed what he proposed, and of course, there are still problems of quality. Pipe flow, but still have smell from the pipe wall, after a year it ends up with almost a centimeter thick. So, yesterday, some people said that if we insist on another year, whether it will be good, I say that is absolutely impossible in this district. Unless engage in another district, improve the technology, and pilot testing is successful, then we can develop an environment. This is entirely possible, but not in this district. Our idea is good.

The overall status of the situation, our idea is not workable,. Now we use the toilet which use 3 to 4.5 litersflush , and now I make a brief introduction for everyone about the changed situation, there are a lot of urine well changed into the septic tank. We have added a clear pool, a regulation pool. This is the changed situation. Also, in order for the sewage to flow smoothly and purify, the Government has made a clean stop outside the purification plant to do the secondary collection and disposal. Processing capacity is also 500 ㎡.

The Lessons learned from experience, using the dry toilet system in buildings, whether from us or the SEI it is the first time. This lack of a mature model for both of us is an experiment, . I have an analysis of my own from the Erdos government and the SEI.

One is that our government did not known well the conditions of dry toilet technology applications at the time of inspection and decision. Such as the local climate change, the acceptance of the residents, differences between residents. They considered it mature and blindly accept the project.

Second, did not control well the progress of developer; it was a little bit quickly. As I just said that is not only technically, but also the progress of the development. It cannot be spread too fast and should be a point when pilot testing is successful, and then promote to large scale. This aspect our government has not oversight in place.

Third, in the development and construction, the Government has not fully checked the quality. So the risk and failure phenomenon is very serious, there are some objective reasons. Yesterday we also discussed that sometimes our design indeed had a lot of problems, like Professor Zhu said the design during implement, planning had too much randomness, for example, the basement of today's pipeline network is 100,

tomorrow change to 150; the straight pipe the corner, that is, change too much. We are not responsible for technical issues, so we do not know. And we have not a good monitoring among agencies, the government should employ an expert at high-level, who understands architecture and eco-san system to do our consultants and guidance. This is very critical. So the third problem is that the government has not a very good understanding and control on the issue. In this case, as I just said, if we had this guidance, and frequent do technical communication with SEI, I think the problem would alleviate to some extend.

From the SEI side, I personally made a summary, some problems I have listed a few: one is toilet design is unreasonable. That is too unreasonable to accept by the residents. At first, just as Mr. Chen designed a simple toilet, which is easy to use, and without so much machinery and equipment, I think it cannot come worse today. For example, said earlier that the whereabouts of manure is very bad. The mechanical part is also not good. Because it is often damp, rusty or the spring breaks, urine hole is very dirty, and every half month its necessary to wash, or it will be blocked, so the return of urine smell is also very serious. Service personnel helped to clean it, and each time wash out a lot of sticky things. These things must be wash out, but the cleaning people access to it has a nauseating feeling. Particular in the rapid development of urbanization urban areas, they especially like easy, convenient, science,. I also asked a number of experts whether it is an advanced thing or not? The Idea is very advanced, but the toilet is not, we should use some better dry urine separation toilets.

I have also been in Sweden, people use a lot of urine separation toilets, but from the Swedish side of investment, the price is more expensive for us in developing countries, we have no so much money. But we can think of how to do urine well and toilet, in a developing country does not have enough money situations. I think in the future it is a main study topic when for developing countries, for water scarcity, drought regions to promote dry toilet. Sweden's urine pipe is sealed very well, without gaps, but ours only one is well, like normally well, that closure is definitely not enough, then smell occurs. Therefore, in developing countries, promote dry toilets in poverty and backwardness, no money areas, hoping to design an actual situation system. Only that it will be more valuable.

The second aspect: it has been not very thoughtful of China's national conditions. Some of our materials cannot meet the application of this project. Such as the mechanical part of the toilet, when brought from Sweden it use relatively long time . For example, the fans, some springs, as long as ours only can be used few days. This also is a bottleneck in the future, how to solve it? This is also a troublesome.

Third, did not know very well the climate here. The weather is uncertain. 2007 is the coldest year in 50 years, a especially cold winter, just a few days our systems are all Frost Crack, and our workers climb on to the roof, on which nearly 3 cm thick ice and snow, to blow up with steam the ventilation pipe. So that is very difficult. for the project implementation, of this concept in our region it can take root, our workers are indeed paid a lot. Therefore, it is necessary to further study the climate, based on local conditions.

As far as government's support is concerned, I think the intensity is very great. In line with our project we became a research and a model on dry toilets worldwide. The government had invested a lot. The data I have known are from different levels of the various departments. Land demolition is responsible by Land Agency, the government give the land to developers by the price of 80,000 RMB per square, and the current land prices have been up to one million RMB, at that time it cost more than 20 million RMB, actually which also 80,000 RMB paid by government spent more than 1,600 million. In order to made the district into a big scale, government invest more than 8,500 million RMB on construction of the outside road network, water network, lighting, afforest and bus. It spent 1,700 million RMB on the district’s re-afforest in 2007. Afforest quantitative engineering is particularly good and user-friendly, the residential feelings are really good, the area rate over 45%. Light spent 3.8 million RMB. The past few years have been visit, learning, meetings, and people coming and going. We spent 1.5 million RMB on transform and improve the district in order to create the good environment. From 2005, each year government will invest 25 million in operating costs, which is only on the surface; we often ask money from the leadership. This 25 million RMB is guaranteed. By 2009, the investment is 1.25 million RMB. During the International Eco-Conference in 2007, we spent 8.6 million RMB for conference fees. Transformation in this year spends about 2.5 million RMB. The total cost are almost 130 million RMB. Our government's attitude to this district can be seen from the figures. In order to tie in with this project, and to give people a

good environment, to make our district as a model, our government have invested almost 130 million RMB. You can imagine our government's emphasis on this project. In my director-period the project was managed by EPA, and later for this project to communicate conveniently with international and domestic experts in this area, we set up a special ecological projects office, which is full responsible by me. Therefore, the government supports the project.

Yet, by all accounts, the project after six years implementation, whether from experience or lessons, I think it still provide us reference in the global eco-san research area. The experience and lesson are valuable, it can let us take less roundabout in study and promotion the project. For example, if promoted it in other regions, of all geographical conditions, community acceptance, funding support, etc. the more important is the government support should be considered first. The project goes something like this**.**

Yesterday we talked about it from different angles, I would like to make two points on the lessons. The lesson is painful, without a reasonable design and planning, it has government and people's lack of confidence. This is a crucial point.

Coming back to the training and education, if this thing is easy to use, why the residents do not support it? We give education and training to the residents again and again. And they know how to use it. The core problem is the design of toilet is unreasonable, which causes a lot of other problems, such as smell, pipe problem. If the toilet would be easy to use and seal better, there would be no leverage off, turned bowl, and manure cannot possibly be handled and so on. These are problems. Not to say that this project is hard to promote, but it not good to use, and attitude of residents are very poor. Yesterday, also said that the residents are mixed, they come from all angles, if this thing easy to use, they will deal with it.

The other is, that the location is unreasonable, and it should be near the agricultural areas. Because if we are persistently using it, our service team will need very expensive costs to transport it to the farmland, it must always be paid by the government, this is not a good option. And it is impossible for residents to deal the waste by themselves. So this site selection is unreasonable, of course, it is not SEI's responsibility. This should be in a farm place to facilitate re-use in agriculture. That’s all what I want to say, wish residents to give supplement.

【Moderator】: Thank you, director Sun. This morning we obviously have some delay in scheduling. We have arranged several speakers, including Arno Rosemarin, Peter. It is more important that several neighborhood reperesentatives also speak this morning, a day off yesterday they have some new feelings. Now, please Arno Rosemarin to take the floor.

Arno Rosemarin: Good morning. Generally speaking, SEI and Dongsheng District government signed an agreement; this agreement is from 2003 to 2007, extended to 2008, to 2009. In this agreement we have identified the duties and responsibilities of local governments, implementation of the project management. SEI's duties are training, demonstration, research and development, providing advice and ideas. We have set up two project team; one project team is Dongsheng DPO, about 10 people.

And a maintenance team, roughly 11 to12 people. Work under the leadership of Ms. Sun. There are two SEI people onsite, sometimes even sent four persons. These people are all led by me, and Han guoyi also gave us some support, Professor Zhu Qiang participated in 2007. We also have an Executive Committee, in which were our domestic and international experts. Along with our agreement, we have heard Ms. Sun ‘s presentation, that is, Dongsheng Development Corporation and the government also signed an agreement, but the SEI did not participate in that agreement. This is of course to follow eco-project aims to set up.

Local government pays for maintenance costs, utilities, etc., while developers, construction companies also bear a great deal of cost, they pay per square meter 1000 RMB, later delivered the standard fee, for example, a number of waste collection , some additional charges. The eco-system cost 50 million RMB shared by SEI and local government. The first four test buildings are paid by our side, such as provision of services, research and development and so on. According to what Ms. Sun said., we have not had the opportunity to test the four buildings, it's just one of our building elements, of which a building has been fully completed, we would have to intend to test, but wasn’t.

What are the challenges of our project? The first challenge, the quality of the building is not the same because urbanization is too fast, and Dongsheng building speed is very quickly. Another, we cannot construct in winter, that is before the winter comes, we need to make sure to meet deadlines. And we have a lack of skilled workers. Sometimes, in fact there is no construction supervisor. In addition to the installation,

the installation of eco-toilets is not particularly good, resulting in the odors. In the original design no fan was installed. Prior to their arrival, did not receive the fan, because construction companies are reluctant to pay the fan's cost, so we have to do some arrangements. In addition, the urine pipe's installation and connection are not very well, so ammonia will naturally come back to the toilet inside. Additionally, the tubes will be immersed in the liquid, the urinal itself also has some installation is not in place, leading to the relevant issues. About 25% urinals have leakage problems, and bowls are not working well, and some other problems. Anyway, installation quality, and so on had some problems. And we do not have proper supervision. There is also connection error with wrong sizes, another installation problem. Until 2008 these problems were improved. And non. Well insulated pipes led to the freezing, now there are also some problems. If these problems are not solved, it will also continue to produce the smell. Installation and supervision is not in place, which is our challenge.

About ventilation problems, first in relation to the design, we did not take into account the air problems in windy winter days, when opening the kitchen and toilet fans at the same time we do not know what is the circumstances. The technology does not take into account the different wind conditions in Dongsheng area. And gray water system also has problems, it has also been delayed because there is not enough water, and in 2005, 2006 occupancy rate is not high. In addition, there are also a number of broken pipes. In this case, we have some solutions until 2006, but some other are block by dirt and bricks and have been resolved until 2007. Later, the occupancy rate icreased, and we can put it into operation. A number of pipeline operation and management was not well. This year in September, there are some outlet pipe blocked by soil. The maintenance systems, before this year is poor, this is also our challenge.

Of course, we still have some problems, we did not discuss yet. There are some additives in the toilet system, the wrong adding method results that additives cannot be used for compost, resulting in the related problems. Ms. Sun and her team paid a lot of efforts to persuade the construction companies to do related work. According to the original design has also improved a lot of toilets. And we maintain a number of toilets according to the daily work requirements. There are sealing problem in all of the buildings, thhen they have been checked. Then the function of toilets has also been improved and gray water pipeline, also improved by the construction companies.

In facti in the beginning acceptance is still high. High level acceptance was recorded in the fall of 2006. But later, the problems were generated during the winter. Then we involved Professor Li zifu , first to do some research in order to identify where the problem lies in and how to improve it. We have also done a demonstration in two buildings to improve it. SEI has developed a plan to allow the Development Company to do some of this improvement work. There has been a big challenge for us in this process looking for key technical staff, who can meet our demands and needs and some demand of the government and construction work. There was such a man, but he later left. There are engineers who did water related work, they came to do some assessments and gave project proposals, but they did not want to participate in this project, so we cannot find the key technical personnel, there are many reasons.

This is the reason our project did not succeed, mainly because that we did not found supports and advocators, or some technical staff. There are also many challenges, mutual exchange and communication was not well and everyday communication is not enough. The two teams do their own things in respect, and there is a mutual distrust. Facing these challenges, how should we do? The two sides are not communicating. We held some formal meetings in Dongsheng. DPO, Daxing Company and our side, sometimes even involve the mayor in the meeting. The meetings play some role to the project. But a meeting is not enough to solve all problems. Particularly with regard to the design and construction issues, Ms. Sun has done a very, very good job, so that our projects can get support from the Government. Of course, she was unable to exert any pressure on developers to improve it.

Also our city urbanization is fast, and each year some members of the government leadership may also change, so the successive leaders may be less and less interest for the project. DPO and SEI established an office on site, for each other to work more closely and so it is. Then we have less and less interaction with the government, finished in 2007 the International Conference , DPO, SEI together, but we are solely responsible for this project, because the Government has no more confidence in us, and the developer do not stand together with us.

2007 International confernce is a very interesting meeting, which produced both negative and positive effects. In fact SEI and DPO spent a lot of time together, from January to August, to carry out a lot of work for the opening of the International

Conference, in general such a meeting need at least 18 months for preparation, but we only spend six months on the preparation, and our own staff almost wholly immersed in this business. The local government spent a lot of money and time to improve this city. In the past, this city there is no garden, no trees, but later afforestation and lighting are very good, but also have many kinds of flowers. I have seen the mayor and he said has spent 2 to 3 million RMB do city beautification.

My own idea is why not spend some money to our project, if to do so, perhaps produce different results. In fact, the international community had a very high expectation to this project, especially after the 2007 Conference . But when they found after two years situation are extremely disappointed, if not organized the conference in 2007, we may have not had such a high expectations. This is my report. I would like to agree with Ms. Sun that the toilet is designed inappropriate, therefore, will lead to problems. Consider the eco-san facilities are poorly designed. In addition, the construction quality is not good, you have to consider having a matching system, otherwise, there must be some odor generated. Therefore, we have to consider its quality, the building itself has a number of issues, as far as the toilet itself, in fact it is to consider whether it is able to compete with flush toilet.

The Development Corporation did not complete all of the transformation in 2008. We ask them to do, but they did not fully do it. Another management problem is, that is we were not able to control the speed of construction, so we do not have time to test this system, in particular test the first four buildings. Now we hear some feedback from residents.

【Moderator】: Thank you, Arno Rosemarin. Once again, I apologize to you. Please Teacher Shen on behalf of the neighborhood committee takes the floor. They have some new ideas on the basis of the day yesterday discussion.

Shen zeru: As district representatives understanding we understand only fairly limited, we are just concerned about the use of that toilet. Through the one day meeting, hearing the experts speak, we learn more aspects of the case, increasing a lot of knowledge, and comprehensively understand the project From the current state of the overall situation, we are more deeply aware of the effectiveness of eco-sanitation systems. This information is helpful for us to go back and report to the entire population.

After this one-day meeting, we discussed in the night, we believe that this experiment cannot continue. The root cause is the test itself, the technical aspects caused damage to the residents, this is vital. Why? Some people attribute the failures to the residents, emphasis that they do not understand and accept, which is very unfair to the residents who participate in the pilot project. For guiding future work does not do any good. We, as their representative is also unacceptable.

Three years, residents have to bear the smell, the difficulties caused by the inconvenient use; maintaining trial expires before unanimously called into the water-flush toilets, fully embodies the overall quality and dedication of the residents. We believe that although the intentions of testing is good, objectively speaking, it caused suffering of residents in our district, the voice is proportional to the size and extent of our suffering, and are also proportional to the length of time. These sufferings are caused by test. If the pilot project would benefit the residents, and there is no harm, it will not appear do not understand, not cooperate situation. Thank you very much.

【Moderator】: Thank you very much. Although a little late on this morning agenda, but just like yesterday, this morning began with review and summary of this very complex and very sharp project. I think this is exactly an intelligent and incisive meeting, and significance of this meeting, now tea break. Later Peter will say a few words, and then there will be a discussion panel on this project management.

【Moderator】: Let us now have the last subject of this morning. We just divide into four groups, and we have less than 30 minutes, each group has 5 minutes do a report. Only report your main points.

Wang sujing: I am using a simple map to describe the outcome of the discussions, so we might be clearer. We just targeted on the problems of management level in the project management process. In addition to these problems, we have also put forward some solutions. First, on the project implementation level, I do not know that if you agree with our point. We think it has at least three of the most important and relevant parties, government, SEI and developers, these three aspects are most relevant in the whole project implementation process. Of course, the tenants also must be concerned about from project implementation point of view. These parties need to work closely together. The Problem is, that between the two parties each has a direct relationship. From implementation the project to now, first SEI and the local government signed

a cooperation agreement to develop this project cooperation in general direction and under the specific objectives. At this level, our government and the local developer has signed a cooperation agreement, in terms of project construction to have the relevant provisions. In the whole team, we are missing this conncection, because the two sides (SEI and developer) did not have a direct contact and communication, leading to a variety of problems in the project understanding and promotion. After all, developers are directly faced with the user, requires him to do a variety of promotion, at this level, missing the middle link, we think it is a serious problem.

To address this issue, we also proposed two possible solutions, if there would be another chance to carry out other projects, we may be consider full from the management team organization. We put forward two options, from the user's point of view, we propose a program, we need to come to qualitative. If this pilot project is really a test project, the project itself ownership should be controlled by the project planning side. We should not sell this project, but take another mode, for instance, we can lease and then solicit volunteers involved in this project. Yet an important point is that there will exist a free exit mechanism to ensure the interests of the users is not undermined. This is one of the prerequisites to ensure that more people involved in this pilot project. Of course, this solution may have some problems in implementation, but we believe it can be solved by the government and developers.

First, research is finished, we lease it, if the trial proves successful, then sale it. And that selling prices might be higher than at the beginning of the trial. For developers, a higher selling price have a certain attraction on them.

Another solution, which is a more comprehensive solution, we take into account the nature of this project is research and development, we hope R & D in a large scale, we must take the developer for the entire project as the team leader, let he be our boss. And the other participants, such as SEI, government, they join in the entire project team as experts in an advisory capacity. In other words we divided the management of the entire project into different levels, but there must be a party to do the leading, the dominant party must be developer.

During the discussions we have had a lot of points, but I will not share with you since time is limited. One point, everyone wanted me to share with you here, of course, from a Western point of view, some of China's problem is that project management itself may not have particularly a large number of special problems, but because we

are in China, this particular environment, the Government will play a more important role. but in this project it is clearly the Government do too much. This is to share with you, if there are different views, we can discuss privately.

SUN lixia: I have to correct, SEI, and real estate and with the government ave a triangular relationships, after signed the agreement the real implementation is that SEI has direct contact with the developers Daxing, there is no that X.

【Moderator】: I have to explain, that developers and SEI is not without connection but has no agreement. I on behalf of my group share our discussions with you. In the normal real estate development process, developers sell the house, the user buy it. When the user have any problems, of course lteh approach the real estate,. But here, because it is a project, so it is actually in the operational level, user first went to the ecological maintenance station, or SPO, or DPO. When the problems were much more serious, the users came to the property management company at the beginning, and not to eco-station. Normally the service of the property management company should include this aspect, but it is special case. The relationship among the property management company , or ecological maintenance station, SPO and DPO were complicated for the users. These will be discussed later. First of all you see high-level coordination between SEI and the government, then to the back, we think that the more lack of such coordination, of course, it is very important for a project, why there is such a lack? This inside is virtually. Because this time, local government leaders have also changed, from here are positive, we are relatively happy, I think it is also a positive feedback. If come here abecause of some problems, then he put pressure on more and more right here on these is not so enthusiastic about it.

In this system, between users and Daxing is a very unique situation. We mainly discussed two issues, one problem is that this relationship is evident lacking, but the most critical thing is this relationship also changes. As mentioned yesterday, there is a technical support issue, if we have more of this support, more of this high-level coordination, perhaps many questions may have different results. On the other hand, from this perspective, more and more confidence in the technology of this system was lost untill no confidence in the future. so in the end toward the end of the spiral. This is achieved through retrofitting and repair, but several times after the last user have begun to lower the confidence and trust, after this road more and more, this time more and more, the Government felt pressure, of course, the Government's first step is to

put the pressure shifted to here, so project management are under great pressure. Finally, the Government cannot press here, the solution is to change. This is my personal view, I would like to say something here, from this level. I feel that this organizational management structure reflects some project level problems. Some, indeed, I mean the system level is that in a place with an even larger context of the country, and there are problems in our system set up. For instance, the relationship between government and developers, this is a very important relationship; there is no major policy to manage this relationship.

Before Xiao Tian joins us, we had talked about the system's maintenance and operational issues, whether they have the ability to maintain and operate this system or not, of course, this is two-fold. For a problematic system, we think that is impossible. If this problem does not appear, from the costs, as long as the system is also functioning, then the Dongsheng government can give a little money, and there is not big problem . We can quickly count one account, and now it is to improve the system also requires a lot of money, if the past system can operate, even if the government uses this money to pay a proportion of property management fee, I guess that can be maintained for many years. Under current system, we find it very difficult to do an objective estimation for another operating system. Concerning this, everyone would have a lot of problems, without it; perhaps this burden will be smaller.

I remember so much. If someone wants to add something.

Jenifer McConville ： We started from this figure, because we know we talked about a lot of technical problems, in fact, the technology is immature, we take a look and found it should be small and should not be done at once so large scale. We should do demonstration projects, do adequate testing, select the number of houses to do so. In other words, our discussions, we are trying to discuss why this has not been done? We are focused on this issue. For instance, we selected 10 households, and then let them feel how this kind of technology is, then we will have bigger scale. We can make such a proposal. And we plan to have done it like this, why did we not made it like this?

Look at this map, what kind of responsibility should the project developers, SEI and the government take? From the government point of view, they signed a contract with whom? Sign to the developers. He said you have to do according to our design. But from the SEI point of view, who are responsible for the design, but we do have a

contract with the developers. So we think this kind of relationship actually led to a sudden step to do so big. Because we know that for construction companies, developers, real estate developers building a few houses in the suburbs is not enough. For example, inadequate service facilities, no roads, this is not a community concept. So they said to SEI, 'look, can we do it a little bigger, so we can make a little money.' We can appreciate that, SEI agreed afterwards, because we do not have a contract, with the developer, we have no way to say "no". The developers said we need more benefits, SEI said okay, we understand your position. Therefore, we do not build four buildings only, we constructed 10 buildings. Then SEI forward a little further, real estate developers said that they need to do this and that because of a lot of reasons, so SEI step back and eventually it got out of control. There have no stopping point. Therefore, the whole project is out of control later.

You are for a step concession here; they are still need more steps there, so concessions start to non-stop. At the end we lost the entire control for the size. We can see that this gives us an answer; what happened throughout the course of a project until the end. It should be said that we do not have a truly effective contract; we didn't constitute a binding contract. After having built two years later, we should have a two-year demonstration project, and we have a feedback from the tenants, then we do the next step of the project, and it might be better. If you do not do itlike this, there would not have so many repair rates, and so many complaints. Do we have the ability to repair? We are unsure. Of course, the transformation would spend a lot, even though our technology; there also have construction problems, not one one way to control it, and ultimately the government, residents and no one way to control it. I think this is some lessons we can get. We can suggest doing the project after getting more feedback from users, but why do we not meet our expectations as good as the original design? Therefore, we think there should be a more detailed contract specification. This will allow us to know where to do something, how to do it.

【Moderator】: Thank you.

Group IV: Our groups discussed the management issues on the project from the details, this project is a very time-consuming, large projects and a lot of people were involved, there are a lot of people have such cooperation between the relationship, so that will lead to a relatively inconsistent and inefficiency in the progress. Our proposals as follow: looking for a party who knows technology, but also understands

engineering, or management, as well as some people with language ability to this project from start to finish it up and coherent, so that the implementation of many things, including a clearer division of responsibilities would be relatively clear.

Second, it is a very new project, so o an extent many employees of our SPO, including maintenance staff, as well as those persons involved in the project are not knowledgeable enough, such as about the project's core technologies. This is leading to some misunderstandings in the implementation of these things, some unnecessary errors will occur inside.

The problem from households is concerned, the maintenance of equipment. Because lot of things are special, so these devices need to be replaced, when they need maintenance ,there have no professional tools or professionals for effective maintenance of these devices, resulting in an extremely inconvenient to use. With regard to this problem, we referred to the SEI side, including some government procurement issues, it is relatively cumbersome to go through some formalities, this need SPO reflect to SEI directly, then reflected in the Government, to the office, such a complex procedure is relatively delaying in terms of project progress. We proposed SPO and the SEI to unify these responsibilities, so there will have no problems for coordination between them, this will be relatively better and responsible to the Office and the user directly.

From the perspective of Government officials, this project, can be said the first pilot project in the world, suggesting large-scale projects like this use the point on behalf of the face in the future, do not 1000 up there, or even a large-scale participation in the pilot stage, but first get some small part of the buildings. We also suggested that the first batch of pilot users, preferably an expert involved in the project, or are professionals, so if there are problems out, they are aware of this problem at the beginning, this can have a better improvement in this project.

Ina Jurga: I would like to add that, you write this very well, but there is one point you does not seem to say, that we SPO and DPO, what kind of role they want to achieve? And we have a project unit, you want to have a single unit, but often there are two different units. As well as the technical capacity is a problem not to talk about, they cannot technically sustainable, so they are generally not a merger, not an entity to do things together, but rather fragmented.

Arno Rosemarie: I would like to add that, I was thinking, this is responsibility of the local Environmental Protection Bureau, rather than a building department. Our design department is not involved, especially hen this project is concerned, local governments was very strong and influential in the beginning in some cases, but did not have some of the most flexible measures to pass our goal. We need to achieve of this project clearly, this is actually the lack of participation ,in particular, from the building side, for example, Daxing, this is also one of the reasons causing the problem.

【Moderator】: This morning's discus is over now.

December 8, 2009 – Afternoon session

【**Moderator**】**:** Good afternoon，i invite Peter to speak.

【**Peter**】**:** In the time after lunch，I'll share with you my aspects. I want to give you a report，because in 2008，we have done an analysis，and this report is on management，communication，organization and technology and so on，in particular，the challenges Ordos project is facing.. We did this work in the Beijing University of Science and Technology，as well as other agencies. We all work together，now we take a look at who did what，how to do like，and it's a review.

Now the first analysis is who is responsible for management? With Whom do we communicate? How to communicate? What we communicate about? What are Technological discoveries? Does Stakeholders have a common goal? Our current goal is to look at whether there is no better place to improve our project in DaXing. In 2008，we started this project. In this project，we can see our residents，as well as operations team，SPO staff， as well as DPO，local governments，SEI，consultant，the international community，DaXing Company and so on， in addition the concept of the audience，they are all of our stakeholders，who emerged at this meeting in 2008. Then we started to analyze their entire communication flow directions. We have many steps to do this thing, through this figure we can see how complex it is.

We have a normal communication and non-normal communication，we'll see，after we communicate with the Daxing company，who is responsible for communicate with the public concept or idea? Our communication skills include the communication between different groups or within the group. The challenges, all our common goal, and whether all stakeholders have a generally acclaimed goal are also included. Our project can save water，which can be obtained through education, as well as promotion. At the same time we can see the help we get in the whole operation process，let them understand this system， system control and so on，these are all we need to do further. Also，we should have better communication with the users when training them. And we will see if training is enough and if it can provide the latest information and so on.

The second part，why do we not have a common goal? No one can train people to master all the knowledge. For example，tell the elderly or children how to use the toilet. If they do not have a very good training and information communication，what's

they did is insufficient propaganda. We want to tell my friends how to properly sit on the toilet，this is also a very embarrassing thing. There are local residents，then they think that our project also has some other odor，and some waste generated can not solve，it is what we need to communicate. However，among the other stakeholders，we found some good things，such as this urine-separating toilet，for example，it can save water，and urine will not be splashed on the outside when people use. They feel there is no need to use water.

The second challenge is our knowledge. At present，we tell people how to use the toilet correctly，and what they complaint is that what we must know. We should analyze households，we must know how many people complain and what they complain about，for example odor problems，which we must be clear. What is the complaint，for example，how many complaints in a week，and if there is complaint about agriculture or hygiene products，as well as how many people complain about the inconvenience，while there are other aspects of the complaints . This project is the facilities outside the house. Every morning，generally speaking，there will be a collection of gray water，also some leak will appear. This systems，called the eco-type concept systems，which shall be used better in foreign countries. How can we complete the change from water to urine-diversion dry toilet? We want to tell them how to use it，as well as we have to leave the possibility of converting water toilet，if the dry toilet is unsuccessful，you can also go back. If we do not control the odor and do regular cleaning，it may be unhealthy. Our building also should follow.

Dry toilets have the following way: you have to open that cover，sit down，and then stand up. Feces and urine are separated，feces is diverted into the manure pit，and urine is diverted in the urine tank，so that the final product out of the manure can be used as fertilizer in gardening，etc.. What is the difference between dry toilet and water flush toilet? Both can be used in this project，and each has its own advantages and disadvantages. In the maintenance，we have an item in 2008，in addition we need technical training. We know that technology needs to be improved，and we do not have national experience to follow，we must do a good job in training of the maintaining process.

In fact，we want to provide to local technical staff the expertise of a German company，and we would like to sign a four-year contract. In addition this system also should make a list，in 2008，we set out a list，which is about all the spare parts，

electricity need etc. And there is this kind of situation that they have the equipment，but may not have enough motivation. We bought some protection for workers， but they are unwilling to wear masks and protective clothing，so what is the criterion of China，we need to know. About the project reporting，it has done a good job，we have published many reports. We have worked out a solid waste program，for instance，the solid waste collecting system，and recycling system. We also take into account whether the family should bear the associated costs. Then in the process of garbage collection，and such a situation will appear，which we have found out from the DPO、SPO， that is users do not like the smell，so they are unwilling to accept. About maintenance costs，what the DPO and SPO have done is not so good，they may have mixed something together，but they did not stop later.

Household user training is to do so，at least when they first reside in the house，but too many residents changed，so we did not do training them. We must consider these situations. Initial，some have done household training，but did not do the follow-up work later.

We are in Ordos，what happened is the odor problem，which makes us very worried. We have to consider the source，such as odor from urine，the reasons of urine smell is problem with the pipelines，ad may be its design and so on. The connection of pipeline system is not particularly good，which also influenced the gray water system. This is our conclusions about the two buildings，we got out of the findings through the survey in July 2008.

You can see here are some design，which is S-bend pipe，in fact how's it going? Gray water and urine flow from this place under the floor，but design and actual condition is not the same，so you can do what you want to do upstairs. This accounted for 3% of them；We are looking such a thing for 3% circulation. In this connection，we should make the urine pipes and gray water pipes get together，but sometimes other situation will happen. Gray water pump，we can see，some systems are much closer，and there is no seal，thus resulting in its penetration and leakage. This is a pump，these two things go in different directions. The DPO gave us an explanation，this is from right，and then flow to the left. This is a decline case，in the design，the entire link is in the front，and sometimes it is seven centimeters，how do you design such a toilet is a flexibility work? In such a case how connect to the urine part?

Sometimes there will be rainwater penetration from the roof，in the report，we found that Chinese experts put forward some suggestions that pipe on the roof should be extended 2 meters. What we have done is to “truncate” it. On the roof，it has corrosion problems. In the different areas， the installation is only 50 cm. In October 2004，we accepted a proposal to do it made in accordance with the right conditions. then the gray water issues，we tested the water level，it is 925146 from the top，what does it means? People use gray water in the morning，so gray water flow in the pipe. There was also some other problems can be found，for instance filter problem which is not particularly good. Therefore， the gray water will not flow into gray water pond，because it was blocked，and so it will lead to contamination. It is impossible to repair and maintenance internal，and we often found that it was blocked. This is the same situation about waste and garbage. Besides，electrical installation is the same situation，the design is in front，and now is the actual situation.

And seal problem，how it should look like? We have a light stick，it should be linked up with the lighting system，because we analyze whether we should do so. This is a roof system，but we have found that it is lighting system had not been connected together. This should be part of lightning protection system. How to go upstairs then? Who can go upstairs to maintain it? In this case，we often have to go upstairs，but we can't. We can find these building's design like this and building is so. These are some pictures what we observed on the roof. The building is built like that. If these pipes need repair，then these things are useless after rains.

Water resources is scare in this place，not only in the family and for children. We can do a summary of some of the identified challenges we are facing. in April 2008，we evaluated the data by software，including assessment of what we have don，but our assessment is not systematic. We assess what has happened，and then think everything is all right，but nobody control again，so we should do training. We also lack some data about occupancy，for example some room， nobody lives there in winter，so the second floor was frozen，which caused the problem in the first floor. We have also done some notes，but no one analyze them. The information of management aspect should also be provided. Of course，there is a lack of some relevant training，this is the case (table) we have recorded，but no one analyze，too.

See compost，transport it out，this is the case when get in. This is the relevant information on spare parts，and no one to make recommendations for training of

workers. While there is no record of fresh water consumption. In addition，energy consumption of this compost by waste water treatment was not recorded. As for the relevant data and information，we are also lack of record. We found that it may have some information and records. They do records about 43 buildings n a few days time，and analyzed them. As well as “organic matter”，people do not understand its concept . There are also no notes about communication between eco-service station and the users. We have seen 41 challenges totally，such as the ventilation system in our basement，and our pipes，etc.，there is some problems in its design and construction. In addition the diameter of the ventilation pipe is too small，and we do not have ventilation system. As for the underground system，they didn’t indicate pipes with color，so that if any water come in，and where it flows is not very clear. Some of the problems，like ventilation，etc. Are facing challenges. There are the related issues of urinal on first floor.

There are gray water system，some families used it to clean something，which is a problem. In winter we have not carried out any protection，and in some basement the management still have questions. Another issue is back to odor，as well as waste water issue，which we are facing. And we lack maintenance，etc.， the urinal will go wrong for lacking tools. And we have a lack of standards for some things. On the roof，are no fans，there are some pipes which is also wrong connections or wrong size，for example，A pipeline connect to the B， cannot be identified with color. the S-type pipes also had problems，not all of the vent pipes are good. And there is no place to install the ventilation ducts in the basement. There is also some noise that is caused by the fan. In addition，dust collection systems，etc.，are defective. And there is no anti-fly net.

Let us see what the main problem is. No one can answer these questions，why some users are okay, while others are not satisfied，as well as why there are in some 100% of this problem，and some not，which is our conclusions. So we did analysis until March 15th in 2008，we chose two buildings as samples，one is NO.3 building，and the other is NO.3 building，a total of 24 apartment. This is what we did.

This is training，coming from the DPO，also to do with the DPO and SPO. This training isn't under consideration， and If the pipe quality can meet our requirements，then it will not have such number of questions. The lessons we have learned what is it? We must improve our communication，and we should make people

aware of the concept of organic waste，let the user get involved，including in management and maintenance. As for the waste management and transportation，we also have a turnkey project，as well as our design, which should be able to fully match to the whole building. We really need a demonstration project; we recommend that there must be some prinicipal engineer，and some other advisers，who can always implement the project. There is urine and manure management uestion， for this a number of other technical staff is required，such as in Germany.

We have data，such as technical data and so on. We need have a clear communication strategy. Why? Why should we make such communication? We want to make sure whether the right information is transmitted. We also propose before we do this project，we should do field visits，and make certain what was the success in this project，how was its building，including its system，and then make a discussion. We also should see a variety of different models of toilets，urinal and so on.

【Moderator】: Now, let Xiao Jiang from Daxing say something.

Jiang Pei-Yuan: Now I, on behalf of Daxing Company, want to talk about our evaluation and views of this project. Originally，it will be done by GuoYong，the SPO Deputy Director，but he excused himself with an emergency，so let me convey his apology，and make a short speech.

Le me start with our overall evaluation of this project，from our part，I think this project is a failure，why I say so? Two reasons，one is the failure of investment，our project is a loss. The other is the failure of social reputation. From start of operation，it have a very bad negative assessment by the society，which made a lot of negative effects on our company's reputation. Here I specifically analyze the reason for failure by our real estate company's view.

The first aspect，when we were initially involved in the project， we didn't do a careful analysis. We are too rash. Why do I say so? Because the project initially is an agreement signed by SEI and the Dongsheng District Government，and then Dongsheng District Government needs to find an investor and ultimately chose us, and then we signed an agreement with Dongsheng District Government. I know only little about the two agreements. The first agreement is between SEI and the Dongsheng District Government, when they planed to build an ecological sanitation system which is not less than 1000 apartments in first-stage project, and is not less

than 2500 apartments in wole three-stage project.

The agreement we signed with the government is to ensure that the agreement between SEI and Dongsheng District Government can be successfully implemented. At that time we did not do too much market analysis of this ecological sanitation system, not only in technology, but also in market development, because we believed that the government will not bring an enterprise to a bad prospect. So this thing is settled and started to be implemented.

And for this project, we come to an agreement with the government, that Erdos can be sold as commercial housing to the market. Such a large-scale promotion showed, from the housing and the set of ecological sanitation, it should be qualified and be able to meet the normal needs of buyers. Later especially after 2007, we discovered that there are more and more problems, we found the system is in the research stage. From start of construction until 2009, this issue has not been resolved because the change from a dry toilet to flush one. It is always in the trial stage, or need to be improved, so we say it is too hasty for us to participate in the project. This is our first reason for the failure.

The second reason, we think that such co-operation has some deficiencies in the management model. What is the reason? Now we and SEI are all facing to Dongsheng District Government. From the Government's perspective, we hope to promote this project, because this project can improve our social environment and play a good example. But in terms of market operation, for the Government，the spirit is strong, but the flesh is weak in a lot of things. Particularly， the government gave us initially some commitment and preferential policies, which are appaealing reason to us. Now the degree of marketization is relatively high, the government has difficulty to operate this matter, they want to keep the promise, but in the actual operation, many things can not be achieved. It leads to our funding shortages. In the process of the project, we must keep compression of funds, and think of ways to solve many problems to ensure that this project would successfully carry out. There have been some quality problems of this project, which is the most important issue a lot of owners complained of. We will not evade. The reason, we can say, is our limited ability, but there are also some external factors. In particular, there isn't a protocol binding us and SEI. In this working arrangement both two stand-alone on the project, resulting in a lot of cross-cutting processes and the vacuum belt of quality. Many facilities and many

ideas were put forward on-site, and the problems occurred in implementation would be improved then. The problems after improved, and then continue to change. There are a lot of unforeseen problems in cooperation, on housing handover and even the use process, as mentioned during the group discussion in the morning. We present a proposal, we should put this scientific and technological ideas to the society, and rely on social forces, make it do marketing operations. We propose that in the future, the project should be led by enterprises, and supported by government, the relevant research institutions can provide the necessary technical support, and at the end, only one unit to face to the market and consumers. There is such an advantage that the responsibility is in one hand, and at the same time it increases the accountability of the market. Rather than the owners do not know which they should adress, the government, SEI or Daxing Company, when there are some problems. This is a very widespread problem in our project.

Here, we are very grateful to SEI experts, as well as our project director Sun Lixia, and other staffs, why should I thanks to you specially? Because in the implementing process of this project, I have also participated a period of time, you are very conscientious to improve on this system. After the problems occurred, including some bad evaluation and negative comments from society and the users, we were able to persist in this project to this level, which admired me. At the same time, thank you for the support of our company on behalf of our Daxing Company once again. We also have a commitment, if later the technology is relatively mature and can be introduced to the market or for other opportunities for cooperation, we will participate again. Thank you.

【Moderator】: Thank you, Xiao Jiang. The discussion on the organization and management of this project comes here to the end. Let's come to the last discussion point of our two-day seminar, mainly the economic and environmental perspective. let us see how to ensure the quality in the whole process of the system. In the beginning, Jenifer McConville will do a simple introduction, and then Li Zifu will tell us something about the gray water, Liu Zhong station-master will tell us the problems on agricultural reuse. And then consider how to organize discussions.

【Jenifer McConville 】: let me show you our subject of the next session. We have talked a lot about, toilets at the household level, the end of this system, how to control through the collection, for example, gray water treatment, compost, as well as our

future sustainable reuse. Associated with these ideas are economic issues. If we do the economic analysis, we have the following result; on the first view it may seem expensive, because it will have more pipes, as well as the basement. But in fact we feel that the best way is to protect the environment, so that we can recycle the wastes. In fact, you can ask some questions, such as whether we have done a cost-benefit analysis on environment-friendly products. Whether it is worth doing, whether our building is more expensive? And whether it can be promote as environment friendly? We discussed this issue, and took a look at the recycling, and then it may be able to benefit economically. If we can sale our composts, as well reduce water use, etc., that is very good. We must see how our choice in this respect is. What are the benefits of such a system? Of course, the quality issues remains.

We have talked about the quality of the toilet before, now lets turn to the quality of composts. First, let us see where is the value of our system? Of course, from the view of monitoring, life style, as well as environmental. Please let Professor Li Zifu tell us something about gray water treatment.

Liu Zhong: Sorry, I Does not have a PPT. We have done a two-year agricultural reuse test in 2007 and 2008, At the beginning, the composting plant was not built up, we composted the material by the traditional agriculture use. In the beginning we were very confident. There is an organic fertilizer standard on agriculture, so composts ' marketization have to meet the national standard. The quality was not good after the start of 2007. The reason is more and more sawdust; at least the active ingredients on agricultural use are not enough. After the compost, the urine is also similar. In 2006, according to tests, nitrogen content is basically unchanged, water may enter one-third. But by 2007, more than two-thirds is water, even two or three times of water. Therefore, more water inevitably results in a transportation cost issue. Because after we test, there is no soil, which cost relatively high.

We did vegetable experiment with urine in 2007, the effect was quite good. Because we must have a comparison, the output with compost experiment is 10% lower than using chemical fertilizers. If mixed chemical fertilizers into the compost fertilizer, output increases about 5%. And then there is another experiment with corn and potatoes, because the corn is not used as feed, so it can not be a green product successfully. It is also in contrast with chemical fertilizers, that output is cut by 15%. Because I was engaged in this, so as far as I know the effect on these organic products,

such as hot peppers, green peppers, tomatoes, potatoes, is not very good compared with other leafy vegetables at least.

【Moderator】: Thank you, Mr. Liu.

Li Zifu: I will talk about gray water. In fact, as an introduction, because the specific design and construction management of gray water was done by the Tianjin Environmental Sciences Central, I'll describe the situation. The so-called gray water is domestic sewage, which excludes part of the toilet sewage that is, the other part without toilet water.

This presentation about this project was written by Tianjin Environmental Sciences Central. After they analyzed the status of gray water treatment, and gray water and domestic sewage at home and abroad, and then proposed a technical solution, adopted gray water treatment systems in Daxing district of Ordos. The system design, gray water enters through a septic tank, and then flow into the adjustment tank, in fact the septic tank may be used by several buildings in common.

Zhu Qiang: It is a big septic tank.

Li Zifu: And then there is an adjustment tank, which is a hydrolysis tank for biological treatment, the specifics I do not know, there may be added padding material, and it contains an aeration device. I think its design is biofilm, but in fact I didn't see it, I didn't not know what it is inside. After aerobic biological treatment, the water flows into the settling pond, and then there is a pond playing a regulatory role. In our design it has a preliminary treatment, , the water passes through the fiber filter, in the middle combined with coagulation and disinfection, and then flow into the clean water tank to reuse.。Another part of water, along with the water in the middle pond, is also flow into treatment pond. There are aerators inside the pond. Gray water can meet discharge standards through such treatment. This was a system designed at that time. They have done some sample analysis during early-stage design. This is a sampling point, No. 1 at inlet of septic tank, and No. 2 points at the inlet of the adjusting tank, which is the inlet of septic tanks and raw water point of gray water. This was a 24-hour water quality sampling analysis on April 1, 2006, one is nitrogen, , the changes of TP is quite large on April 1 and April 2.。 In general, ammonia nitrogen is between 10 to 25 mg / l basically, the largest data is 30, and the minimum is 10 or so. TP is below 10 mg / l both on April 1 and April 2, about 5 to 3 mg / l or so,

nitrogen and phosphorus in gray water is much lower than normal domestic sewage. This is its advantage. After the source separation, there is no need to remove nitrogen and phosphorus. It is also an advantage from the point of gray water treatment.

The analysis also includes the determination of suspended solids and COD, SS is relatively high on NO.1 and NO.2 point, COD levels are also high, some is up to 600 mg/l, and some is even more than 1000 mg/l. COD is 600, close to 1300; it changes is a lot. But, in general, it is still relatively high, even there are fluctuations. In This place is relatively low, especially in the evening. Of course, this is only a day's test data, which does not reflect the actual average, and it is a random sampling parameters.

The system design include what I have said above, such as septic tanks, the two other ponds- one is regulation pool, and another is a hydrolysis pool- and aerobic biological treatment, sedimentation tank, and post-treatment pond. There are also some design parameters, including retention time, and volume load. This is a 24-hour measurement of water quality, which is similar with the previous figure. We have just introduced is the design process, but the actual construction did not have this. There is no fiber filter what we just said, and no clean water tank, not adding of coagulants. Emission is intermittent, when up to the highest water level, it was discharged. These are photos of post-treatment ponds; other photos have not yet to find out.

There are some quality analysis parameters of gray water treatment system after treatment, which was done by local environmental monitoring station. There are some deviations among source water pond, the middle pool, and post-treatment pond. COD of source water is 464 mg/l, in the middle pool is 112 mg/l, to the contrary, this place is too high, and the post-treatment pond is 136 mg/l. NH4 -N 、TP and TN, including the PH, are basically normal. If we look at TP, it may conform to the emission standard II, not the emission standard I, so this value is still high. The COD does not meet emissions standards, so from the data we measured, this gray water system is running irregular. There may be several reasons, one is the high COD inflow, and the design parameter perhaps was not so high. But actually we know that some tenants have discharged faeces inside, resulting in relatively high COD. However, the process operation may also have a problem in itself. We have not done a detailed investigation on it, but according to our on-site observations of water quality, including its operation, I think there are many parts which can be improved. This is our overall

impression. With regard to this part of the gray water, I introduce so much above, but also as an introduction.

【Moderator】: We have invited Li Zifu again to on behalf of Professor Zhoulv to say something about economic evaluation.

Li-Zifu: Mr. Zhou has been involved in this project in 2006, when the project commissioned him to do cost-benefit analysis and economic evaluation of source separation system for the residential district. First introducing the characteristics of sustainability sanitation system, there are several features, including human excrement and organic matter treatment, as this natural and low-power methods, including recycling of nutrients, especially nitrogen and phosphorus security recycling and accessing to the recycling of nutrients recycling chain in situ. There is a low consumption of water, ecological sanitation systems has a low consumption of water. This water can also be used after treatment, such as for irrigation and so on. This application, especially the source separation system is still relatively new in urban areas, in 2006, it is still very new, and the Olympic Forest Park has not yet built, which now also use the source separation system.。 At that time Tsinghua University office building has also not yet been built, and Erdos may be the first urban ecological sanitary demonstration projects in China .

In ecological sanitation systems we should examine its available technology, the user's acceptance, including the benefits and costs, as well as the potential for future applications, etc.; all of this should be studied. It is mainly cost-benefit analysis and comparison. It made a comparison between the source separation wastewater treatment and conventional wastewater treatment systems. Using this methodology, there are many different evaluation possibilities, including cost-benefit analysis, this can be translated into cost-effectiveness analysis. Another is cost-utility analysis, as well as minimal cost analysis. From these methods, Mr. Zhou chose cost-benefit analysis, considering lack of resources, pollution control, environmental improvements, as well as contribution to this project. This benefit analysis has a calculation indicator; we called ENPV, using this method to carry out the calculation, and then do a comparison.

If at an appropriate discount rate, the predicted ENPV, the data show it was good. This comparison of the two projects, of course, high, or is the highest and more receptive, that is to say a high net present value of its economy, from the efficiency of

it is good. About this project, it is clear that the system processes, in particular, for the waste recycling process there is a central source separation system There is gray water, as well as feces, there is kitchen garbage, as well as urine, the sewage system was divided, the gray water should be treated to reuse in irrigation or landscape, or be discharged. The sludge composted in the system, including manure, gray water systems sludge which can be put together to compost. Urine is transported after the collection; the process of collection is a treatment process, which is the harmless process. The reference system is a traditional wastewater drainage system, which use water to flush all the waste into a centralized sewage treatment plants through the sewage system, the remaining sludge disposal is basically on a landfill. This is the benefit analysis. This is the direct or indirect benefits and external benefits of ecological sanitation systems; the direct benefits include water savings, the recovery of compost manure and urine as fertilizer after treatment, as well as the value of the other runoff. At external, it is mainly to reduce the construction costs of sewage treatment plants and solid waste treatment, and reduce disposal costs of trash and the remaining sludge, as well as sewerage operation and maintenance costs, including sewage treatment and water supply costs.. The net benefits, the increased cost of saving water, the external environment benefits caused by water pollution . As well as the increased value of using compost、urine as a fertilizer. Its investment, in fact, includes the entire ecosystem, eco-investment in the system，and its operation and management costs. The direct costs, through the waste water charges, as well as through the waste treatment, whether we have to pay. External or indirect benefits are gained through water pollution control.

The traditional / conventional sanitation system, which inputs include sewage treatment，and operation management costs, this investment also include water supply in addition to sewage treatment. He simply wrote investment cost. It has an economic net present value (ENPV) calculation on both the ecological sanitation systems and the tradition systems. This is positive, that is negative. There is a discussion, if the sewage costs will increase from the current 0.8. I do not know the situation of Ordos，but in Beijing it has just gone up nine cents last week. if the sewage costs increase, then its economic net present value will increase likewise. Just say, it is 79 million and it will add more than 30 million. When the waste water cost increases, net present value of dry toilet system will achieve more than 9,000 million. We did some analysis from other aspects, including the social depreciation rate, which is

different from different countries and organizations. In American society, the depreciation rate is from 1.6% to 3.2%, the time is 3 to 30 years. In ADB, it is 10% to 12%, the difference is very great. For social depreciation on environmental protection projects in China, this is not more than 8%.

The conclusion is in accordance with 8%, when using this cost-benefit analysis and social depreciation calculation, so the net present value of ecological sanitation system is much higher than conventional sewage treatment systems, which means, for this project the analysis is acceptable from economic point of view. In the proposed depreciation rate of social circumstances, according to Chinese standards, then the net present value in the economics of ecological sanitation system is much higher than traditional drainage systems. The system which can improve a higher degree of water reuse, include saving of resources, or the recovery of nutrients from human waste, or from the waste water reuse. direct benefits are probably more than 13 million and about 1.9 times a year, and 1.96 times compared with the traditional systems. External revenue is actually more important, in terms of this system, and external revenues reached 14 million a year. This benefit is very high because of environmental benefits, resource efficiency, energy efficiency, and social benefits. This is equivalent to 35 times compared with the traditional system, it shows the system is very acceptable.

However, due to the lack of application and experience in practice, especially for ecological sanitation systems in urban areas, and that there is no standardised equipment, the construction costs may be high. Its construction costs may be 2.17 times higher than that of traditional systems. It is anticipated that construction costs would be reduced in the future; costs can be reduced with standardized application and policy support, and then less and less experience. And the economic analysis also shows that most of such benefits are from the outside, in fact, the just calculation results also can show, so he thought this support mechanism should be build up quickly, including water rights, the sewage emissions trading rights, cost-benefit analysis, reasonable wastewater and water prices, while such conditions and needs are also completely different in urban and rural areas. fFrom the perspective of economic analysis, the Erdos project is a very good new drainage system in urban areas,. Researchers and engineers should be shared their experience, so that is a very good beginning. I think they do this research in 2006, 2007. I only gave you a brief introduction of his economic analysis.

【Moderator】: Thank you. Then we go to the tea break immediately. After the tea break, I want to do two things, we intend have a group discussion about how to guarantee quality in such projects from 2:40 to 3:30, and we have foreseen another group discussion on environmental and economic standards of following systems. These two discussions, we have an hour after tea break . After discussion, we try to gain time to abstract the key experiences, and summarize what we have discussion in two days before five o'clock.

Jenifer McConville: Let us come to the last part. Thank all of you to be here with us for so long, we should not do a panel discussion, now we do a summary the standards of environmental and economic. We also have talked about it during the tea break, we also want to ask some questions that are the problems above, so we can come to discuss on account of these issues, and then we take a look at the end what experiences and lessons we learned in the project. I have prepared a number of questions which we talked about earlier; the first one is what the driving force for dry toilet system ? What can guarantee our sustainable sanitary system? If we look at cost-effective, whether it can be accepted? Based on the environment perspective, it is certainly profitable. Based on the institutional perspective, people have different driving forces, of course, the user also has its own, so sometimes despite our cost-effective-ness, but people immediately get to money, they didn't want to spend such a large price to do this. What is the driving force for all stakeholders? From an environmental view, how do you transform environmental benefits to a driving force for people to do sustainable sanitary system, this is what we need to consider. Let us see what resources we need to develop this sustainable sanitary system in China? When we make a plan, what actions should we take so that this approach can grow in China. How to make sure such things can continue to do, when we have had such resources. We need technical personnel; we should have a grasp for the entire project and how we can assure skilled personnel? In addition, how to guarantee a very good construction quality, as well as the quality of disposal. Now let us begin the discussion, what questions do you have, for instance, the report we have heard before, as well as environmental and economic factors and now we can draw on collective wisdom. Our final discussion is about the economic benefits and environmental problems of sustainable systems, but how to make the project reach sustainability still should be discussed.

Gao Zhong: I think, in China, there are two cases, and one is that China's pollution problems will be most serious, because it is the world's factory. Yesterday, an example is the women's hairpin， now Korean goods have the biggest market in China. However, all production concentrated in Yiwu, and why? Pollution is extremely serious. Therefore, China's pollution is the most serious one of world. Furthermore，China is large.

Secondly, in China another very strange phenomenon will happen. China's low-carbon emissions，ecological voices and a lot of new technology are also in a leading status in the world. I was against the tide the previous seven years, when everybody is making money, I was an idealist, I did not make money, I lost all opportunity to make money, but now I come back to make money, and I feel it is the time. What money I make? Now we find such an opportunity, and we have to curb pollution combining with capital, because it pollutes the world. Now many wealthy people began to establish their own foundations, began to spend some money doing it. Such as in Shanxi, recently talked about the deep contamination, which accumulates and spread to the next generation. Moreover, this money is not minority, they have committed hundreds of million, 1 billion, 10billion, 38 billion, and even 50 billion, and this commitment can not be recovered. For the non-governmental organizations, we should not live a poor life, now we have several requirements. One demand is that a bunch of rich, upstart, they want to save their souls and get a little consolation, that the second rich generation has been unable to access their classes, and then they needed some people to help them realize their dream, we must learn how to ake them on our path. But the tradition of China , the requirements of a harmonious society, as well as the low-carbon emission reduction requirements for China's from international community, and our organizations, it is an embarrassment on our finance. But all can be resolved, this is why I spend a lot of time to search funds.

The second point, including what I do, which is indulge in self-admiration and courage without discipline, you spend all of your money, it is no use you crying yourself there. So I think we are talking about a rainbow plan, while we insist on doing an rainbow, the first one is that the central government must release the money, because we are taxpayer. Therefore, in every project the central government contribute money, and local governments must do so. The third rainbow, that is, non-governmental organizations should take induction fund. In addition, of course,

you provide human recourse, your energy, which is the money your organization spends. Fourth, although China is between developing countries and developed countries, but I think a lot of international organizations, will still offer some money, while I believe that business as well as financial institutions, banks should provide money. Supporters and beneficiaries are also should bring some money out. These organizations get together, we spend money together, do together, so that it can make this event more sustainable. This morning, there is one person pull me to do shareholder, do village bank, but China's financial control is very tough, so village Bank is hard to be approved, he said that he can ensure get the approval, he asked me to do shareholder, I say I can. What are the conditions? Whether to support towns and villages, or to support micro-loans for farmers, it has played a significant role on our project, what he want get is glorious reception, because current China's banks are concentrated in large and medium cities, there is no way for farmers to borrow money, but this will be added, we should open our mind.

Also what are the requirements of international organizations, I am very grateful to SEI, very grateful for Mr. Han Guoyi, I do not care how much money you spend, I consider the spirit, the belief and the tireless efforts what you gave, which is like a ripple phenomenon, I think the next step of our organizations, including the training from Tinghsui League, not such a simple training, we engage in 140 organizations last time, we hope to form a number of organizations, and do much more things. In addition under the circumstances of China's control which limits non-governmental organizations, we must come to an agreement with the central government, I suggest set up a China eco-toilet associations, including, if the government see you doing a good thing , he will approve. In the past we dare to think it, actually we have to dare to think; I can do with the high-level public relations. Thank you.

【Moderator】: Many thanks to Mr. Gao. Just like what Jenifer McConville said, that I speak mainly from the people of Dongsheng, these problems what we discussed often inevitably involve a lot of research in this area when come to the end of meeting. It makes local comrades feel that they have no views. In fact, after spoken up, the problems are closely connection with the problems our project encountered in Erdos. For example, the first issue is the enthusiasm of all parties, which we have been talked during the two days discussion, from a basis view of macro profit and loss analysis, Tsinghua University set up such a analysis in 2006, it is very clear from such a macro

system scale. It is cost-effective, and also has environmental benefits, but in the specific implementation, from the point of users、developers and even the government, every one doesn't calculate like that, when doing the own accounts. How to overcome this kind of obstacle when we will do such projects in the future, this is the first question, we mainly want to discuss. One we have talked about, for example, the relationship between the public and the private business, of course, then national policy environment is also on the agenda. Because there is no national policy to guide us, it is very difficult to operate under the legal process. There are many other examples, I would like to give a little encouragement to the local participants, if you have something to say ,I do not want take up too much time.

Chen Xiangyang: I have a long experience. In china we obey the party and then follow the party, everything is promoted by the government,.We need a policy, we need a sustainable development policy and a clear objective. Sweden seems to have a clear objective, by 2015, to recycle 60% phosphorus of waste water, of which 30% will use to arable land. Our country has been talking about circular economy, sustainable development, scientific development and harmonious development, a lot of new terminology, but not a target at all. Our local leadership, governments are at loose ends, each person must have its own eco-villages, eco-estate, our country, including some very small countries, such as Singapore is guiding China's ecological standards, I think SEI, as an international organization, as well NGOs, can convince our central government, including formulatation of a national policy. The most obvious example is the family planning policy. Chinese do not like the family planning policy, but why it can adhere so thoroughly? It is because of the party's lead, at the risk of sounding cold; Now we are facing an issue of sustainable development, if this generation does not take action, phosphate rock will not be dug within a few decades. What resources will our children rely on? Therefore, we must have a clear policy. That is what I wanted to say, thank you,

Li Zifu: I would like to say a few words, that is, from the economic and environmental terms, in fact one and a half ahead of time that we are discussing, we are very accepted this idea, this is also the need of social development, not only this is China's needs, but also the need f the whole world . And now we discuss climate change, in fact it has relationships with our sustainable development, the energy-saving, resource conservation, and reducing water consumption, etc. I do not

think it an incomprehensible problem. Then the main problem is how to implement this thing, how to implement the actual project through with this concept, this is very important. Simply to isolate the ecological sanitation alone, I think in small-scale there may be necessary for its existence. However, if looking at it in a wide perspective, in the city's point of view, in a regional perspective, maybe from the outset, it should be combined with urban development and urban planning, consider in a macroscopic perspective, this is very important. In fact the Chinese government does not think that there is no sense or no requirement for this. In fact the requirement is huge. Based on many aspects we can say the driving force, is the limited reserves of its own resources, water shortage restrictions, including energy resources, greenhouse gas emissions, and all these are very important driving forces,. This matter, in fact, now is to be done, but this is also a process.

This year, China has also set up a special eco-city planning organization called the Professional Committee. I am also a member of it. The committee, in fact, includes the city managers, mayors of several cities, as well as many domestic urban planning experts, urban architecture, gardens, transportation and environmental protection, ecological sanitary experts. This actually provides a platform that combines these sustainability ideas, in fact not only the ecological sanitary, as well as transport, energy, and how to implement them specifically. This is just the beginning. Ecological sanitation, I think is also very important, . It should be said that demand for ecological sanitation is not only an objective demand, but also a subjective need.

【Moderator】: Thank you. Mrs director Sun.

SUN Li-xia: Thank you. I would also like to talk about my feelings after this two-days of discussion. Although this project has experienced six years, it gives me a deep sense of a common development of environmental and economic benefits . As for the link, when our local government makes a policy, we should take into account environmental protection and ecological development, and should combine it with our national policy. For example, in recent years, we do a lot of work in the Dongsheng area. While we developed an ecological sanitary town, or the ecological sanitation district, but this is just one part of our urban development, which did not represent our overall goal of ecological urban development . For example, we have established the overall large-scale waste disposal and recycling, it also make use of resources, achieving zero emissions ultimately, we feel that this project was a sustainable thing

which can be implemented continuously, and this is typical of circular economy. In addition, the development of ecological changes in recent years, the vegetation, climate change, this is also reflected the reality on the ecological transformation development in small cities and towns. Our Dongsheng District develops fast, and Erdos develops fast, as for environmental benefits, in its various forms, should be compatible with urban economic development. The Government should also put it on their agenda.

The second, environmental effectiveness should be linked to economic interests. In this year, Ordos is a very rich resource region, but a I have worried about the end of coal resopurces later, and then how to go on with the life in Erdos? This began to appear, and all the mines are planning to the business, are exploiting at a large scale, of course, this supply is for the whole nation and world. As for energy saving and emission reduction we are talking about, whether we take into account these problems? In some government-related meetings, we have also mentioned this problem, and government agencies had not appropriate considerations on it, and did not regard this matter in-depth. So I think the resources and energy, although it was used, and the economy is up, but the environmental benefits should also be taken into account.

In addition the development of small towns is relatively fast, after immigration there are more barren hills in rural areas, and what is the future development there? How do we protect the physical environment? How to manifest this kind of fast economic and environmental benefits? This is worth our deep thinking

Madeleine Fogde: I want to do a comparison with Sweden. I was born in the 40s, as the first generation, we were educated we should not casually throw debris, to care for water resources. Because in the 40s, Sweden is developing very fast, we are outing of poverty. And later at the school, they were telling us that we have to take care of our environment and provide proper care, because you need to limit damage to the environment, this resource will run out sooner or later, our forest resources also will be depleted. In 1972, we began to really worry about these issues, and have these environmental conferences, and research how to address these issues and so on. I want to say that we did have development problems, China is also the same. China is a large populated country, especially very poor before, through development, we hope to solve these problems, and we hope to have a good life, so that each person has the right to live a decent life. But now to be discussed is how we can overcome the

very negative phase that Western societies experienced, because we has been in continuous effort on poverty, for the rapid development, poverty alleviation is also a great achievement, but at the same time we should avoid the environmental deterioration. Of course, I am very worried about the capacity. For example, how do we construct capacity, on the one hand, I think we should educate in all schools. Of course. you can have a policy, but you need to start from the education so that children know that these training programs, while growing up, in they first lesson will be able to know, from the kindergarten would know not to waste the resources and to care of the environment, pe.e not take any plants,. This is our childhood education and In Sweden, you almost cannot see garbage on the street, and now this has become a consensus, this is the core of our education. Let us grow into a good citizen, who can do to the citizens due. And recycling, we must have such an incentive mechanism that allows people to do recycle, for example, we encourage people recycle things in a community, because we know that we can speed up happening of recycle through such an incentive mechanism.

We feel that this is a powerfull example, we know that in a very complex area, for example, we have a dry-type toilet, just saw some pictures, they are very complex, we have seen such a community in the Olympic Games park , a lot of people come to visit China, to see the birdnest, the Olympic venues, they can see in the city can still use such a dry toilet system, UDDT systems, these are the future technology, we should make it attractive and comfortable to people, so people are willing to use such a system, it is very important to establish a model. When people use the toilet, and this is our goal, so we should have some incentives for people to carry out the recycling, but also have sufficient training and adequate communication, in order for us consensual thing to have a clear understanding.

Roshan Shrestha: I have worked in India, Bangladesh, Nepal and Pakistan, I felt is that there are many good idea in China, because you do certain thing when you really do it, a lot of people complain about, for instance, the toilet is not good, smelly . But take a look at the Indian government, as well as Bangladesh Government, and the Pakistan government compared with the Chinese government, we know that every project, these projects are done in these countries, improve water supply systems, it does this since 20 years, but its not enough, that is to say the Government is very inefficient. In India is also a very large, urban water supply. So I came to China,

what impressed me most is that you just do it, and the Government is very strong, so we must be able to continuously improve these things, so let our local people to take action, action is the most important. So that we will have more models come out. Like professor Li, and other experts, they really played an important role in motivation, and then lead us to do these things, so we feel that no matter how the results, we feel that this first of all is that we must take action, and the Government to take very active measures, they have a very good leading policy and guidance, and that all these things are what we can learn and be able to do. Of course, we know that there should be a number of incentives. As the driving force is concerned, we do have such a driving force, because we know that more people are willing to accept this kind of education, they care for the environment, saving water and so on. We are talking about environmental management, we know that we should be able to achieve a good balance between good environmental and economic, and we know that these are two pillars. We must be able to understand why we have to protect the environment. Generally, they have access to the recent interest, but if tell them the importance of the environment protection through a good project, and such as the economy may not be an instant success thing, this requires a long-term commitment and action, but if we have adequate education, with the improvement of people's education level, they would be willing to do such a thing.

Sometimes we do the project, it may fail, but it is a learning process, we learned a lot, so that we know is full communication when do the next project. I very much admire the local community, because they want to do certain things, they did it for six years. So, we can know that this action is the most important, and we know now there is indeed a problem. We have to look directly at this problem, to solve this problem, we are now taking action to solve this problem, and I think these are very good. We feel that there are many good examples in the implementation of the project. In 2008, in Nanning, which is a good model city, in four years, they clean up river in Nanning, how do they do that? During the time of your visit in Nanning, we found that it has been very obvious, and we know that Nanning has made such an assessment, that it is to establish during four years a clean river project in Nanning. four years ago the water was dirty, four years later, the water is very clean. We will also have more examples, so we can do a lot of work. Because we know we have a very strong government, of course, we should have a good monitor; otherwise, we would not succeed. Therefore, we need government involvement and are able to act.

【Moderator】: Thank you. Thank you for giving us the confidence and encouragement, I feel very good. We all know I have asked Ina Jurga to give us a summary about this two days discussion, we will have some time to the end. please Arno Rosemarin talk a little to us.

Arno Rosemarin : For the Chinese model, we know that if there is one country in the world, it can be sustained, and then it should be China. There is a reason that we have a very strong central government, then at the same time, in order to do this, we must have a good dialogue with the people, this is what we lack. In the process of doing this project, we think this is a mistakes, as well as our dilemma, we have a strong government, strong political parties, have a strong ability to do such a thing. For those in the West where we have sufficient communication and exchange, so we should be able to find a relevant entrance point, how do we communicate and exchange? For example, the need for capacity-building, communication, and we should not be afraid to educate our officials, etc.; this should be the next step to a more equal communication.

Peter: I just want to say that we are talking about ecological sanitation systems is very important for the government, we know that the Erdos government, thy supported a very good project, there is that they have this kind of environment-friendly housing, the Government provides a number of ideas which are very good, it also represents new resident, or the relationship between citizens, it needs to more environmentally friendly in the future course of development. This need we have some idea in advance to solve this problem, how should we do a new project? When do a new project we should learn to do it better. We have the party's policies, China is the foruth country to sign the 21st century agenda in 1994 . It has completed its own sustainable development faster. Our project has not been a very good success, but it still has much to be learned.

Ron Sawyer: When we look back, I found it very useful, is also very important, what we all have said, China's representative, and some other, I look at this project as an outside observer, I am very surprised that China has such a quick change and development when I first came to China. in particularly rapid urbanization, but in the process of urbanisation the process we should not ignore that we have to see how we do these projects, do these buildings, particularly in the construction sector. We have to address that the waste disposal will be a huge environmental problem in the future.

And its costs are a very high price to deal. We have a lot of pollution enterprises in China. So when I talk about Mexico, it is the same, we know that in 1985, there was a big earthquake, a lot of houses have collapsed, because the construction quality was bad, and therefore The Government must have a new building standard. How do we ensure eco-friendly cities, if we can not guarantee the building quality? When we are talking about urban and rural areas, we must have an overall view of it, that is to say, we have to build a sustainable society, it can not be completely urbanized. To some extent, I agree with what Arno Rosemarin said , we have a strong central government, and we found that in Latin America, their government is not so strong and unstable, in China, the society need people to participate fully in, which would reduce antagonism between us, this is very important, we need more of these seminars, listen to what people say and their voices, respect their point of view, for example, do not underestimate people who come from the suburbs or rural areas. They are the closest access to nature, we should listen to their voicesand then use a correct approach.

【Moderator】: Now, please let Ina Jurga give us a summary of these two days

Ina Jurga: I hope that we can listen to this last-minute seriously. All in all, we have achieved some fruitful results. Some people seem to leave in the afternoon, but I still think a lot of good points have been raised. What is the main lesson? I do not want to repeat the contents which I talked about in this morning. Today, we discussed the problem organizational management and some aspects, such as environmental and economic issues.

Professor Li Zifu said well, how to integrate theory into concept, into reality. For the concept, we need sustainable health, sustainable transport, but we lack of a good plan. We did not succeed in real life; moreover, we did not satisfy with the reality. How can we have a good convergence to connect the reality and plan?

Meanwhile, we have a very long way to go in the city's sustainable sanitation. Now, we have a new project. And this project is very large, involved in many aspects and particularly complex. It is also the reasons why the project failed.

The third question, we have some lessons in failures. The first part involves the technical aspects, it is not yet mature and not carried out large-scale applications before the test, In addition, its construction quality is not very good.

From the socio-economic point of view, people's participation and cost-benefit analysis are not enough. From the management point of view, there is a lack of communication. the institutional arrangements are not reasonable, plans are not enough and so on.

No matter which aspect is concerned, the core factors are causing our failure.

This morning we talked about the proposal, so we can make some suggestions. Such as in technology aspects, in research and development stage, We need a good quality control, so that those who have the ability and authority to monitor; the most important is to do a good plan/ study, and then begin with small things; furthermore, it also need a strong technical team to support and do post-maintenance and maintenance work.

From the economic point of view, we hope that such households participate, so that they themselves are also involved in the maintenance and management. Training of the users and ongoing communication with them. Through the adoption of this strategy, it can achieve cost-effectiveness. It is best to allow users to feel the benefits, so that they feel better to use, and can be beneficial. In addition, Peter said that the stakeholder arrangements and communictaion are also very complicated, and in fact we can also see this point.

Today we also discussed the issue of institutional facilities which we must consider. We need to consider the developers, rather than exclude them. In addition, there are some good suggestions for R & D projects, we must set up a project unit or a manager, to put it in the company's developer is also possible, but we will certainly need such a person. From a management perspective, we must ensure maintenance timely, because there are many problems in maintenance and operational. This is not just that we have deficiencies in responsibility, for instance, there are a lot of responsibility transfer problems and so on. In any case, exchange and communication deficiencies still exist, lacking of a number of channels to communication.

For the cost-effectiveness, we had discussed it during this afternoon. Whether it exist boundary in our system and conventional systems? Whether all stakeholders involved in? All these problems need to be considered.

There are two recommendations, one is about the communication strategy, Peter said, who is to take charge of the exchange? How to communicate? What are the contents?

Who will do the technical design and support? It must be clear what is technical exchanges and technical support.

There are technical and socio-economic problems in this issue, so I ask myself; we have so many problems, whether the technology can improve the situation? Then how to improve the situation? The Answer may be possible. In addition, if we have better technology, whether it can bring some changes? Of course, the answer is yes. Maybe we can make improvements in other areas. We may have some bad technology, but the technology may not be bad in itself, but poor management may cause this problem.

Today, in fact I've also learned some knowledge, such as failure is the mother of success, this is a Chinese proverb. Finally, I have some simple ideas. The lessons we have learned from these experiences today , how can they be applied? How can we improve next time? How Can we do better? Can we answer these questions now? This is all I want to say. Thank you very much for you participation.

【Moderator】: Thank you, Ina Jurga. She worked very hard. We have already heard some very exciting conclusion.

Zhu Qiang: With regard to stakeholders, Ms. Zhang is from the design side, and made some contributions, this is say lack of design side in the benefits.

Roshan Shrestha: How to make the technology transfer? Like we discussed in the last time, we can make technology more Chinese, rather than a simple transfer technology to China.

In fact, we have already discussed this issue; we have to spend some time discussing. We have just seen so many slides, and then you can add some new things in these. Take a look at what Peter want to say.

Roshan Shrestha ： On the management side, do take the user into account? Because you should to manage, the developers are clearly important, the user is very important too. In addition, we have to consider the environment, from the beginning, the environment is very important.

Zhu Qiang: Go to the page of technology, I think we have the quality of supervision and control is good, I agree. However, to implement the case, the saying is not right, because we have some checklist that is aimed at those issues in 2006, so we submitted

to the DPO, it allows them to remind the Daxing Company to resolved it. Then why do we come up with the checklist which is not implemented? So this is worth to analyze. We have a checklist, this checklist has many implications.

Peter: about localization, I already raised this issue yesterday, and I think we do not have to re-design this project, because of this strategy, we have already made an explanation, the Swedish experts have done some explanation, then this has been carry out according to Chinese standards, we did some model buildings, it carried to the next step after building test, this means we have a strategy which developed well, but the implementation is not as we say to implement. it means that the strategy itself is very clear, you should not go on when you did not do in the case of model building, at that time we should stop. but we did not prevent. This is our failure, we must do it from small to large, then a small problem otherwise would not have become so big.

SUN Li-xia: Why Daxing Company has not changed? it Changed, but there is a principle and a great conflict of interest. but no change in toilet, People are not interested in refurbishment and have no interested in continue to do so. The toilet does not change; people will not have confidence, so all the issues surrounding are the toilet must change, so we lack confidence. This is the very central issue. After a very long period of transformation, the toilet problem has not changed. We have suggested how to transform the toilet, but it has not changed, the pipeline does not work if toilet does not change.

Zhu Qiang: This is a response to Mr. Peter; this is no plan to implement. these issues which Peter talks the afternoon, of course, most happened in 2007, there are also many problems that occurred before 2007, Sun Zhuren you have time to send staff to examine the basement , we have a check list.

SUN Li-xia: We did have, but it also more than Daxing Company, Daxing Company has set up a corrective, but finally we have passed inspection in 2007, let's also followed the staff side of acceptance, and finally how the end of acceptance, anyway have signed, Anyway, at last residents are not satisfied, they did not change in their toilet, no matter how engaging. It lacks the confidence at that time.

Arno Rosemarin: About the Toilet, I agree with what Ms. Sun said, why the project failed? The reason is that no one is willing to pay 800 Yuan for a new toilet. Whether Dongsheng District Government or the Swedish, because the government has already

spent 30 million, perhaps 31 million, the Swedish government has also spent 20 million, or 25 million. In this case, of course, the money is not a lot. it is just 50 million Yuan, and in fact these people are not the owner of the project. The project, with regard to this thing, we have been to this business to consult, they also have this the toilet, this Toilet, in the future, there will be some other projects. This project, we have used for many years, we believed it could be improved, but will need some money to make an investment, it needs investment. So your analysis is entirely correct.

Chen Xiangyang: I want to emphasize that the project come to this extent, the problem is not a toilet. Our family planning policy is worse 10000 times than this toilet, and our people still accepted. So the key problem is that countries do not have this policy. Our toilet, you would say it fail, still 50%, 60% of the people to accept. So we forget about the toilet, we went to focus on the establishment of a clear policy and objectives, multi-buy some of my toilet, thank you.

【**Moderator**】: We have to liven things up a bit. Let us look at this summary. We look at this page, if we call it the problem tree, because we learn from this result it did not meet the expected results, why? The past two days we are also from a technical, from the socio-economic point of view, from a management point of view, I considered, we really need to discuss which content wee need to add?

Madeleine Fogde: I think I would like to ask Ina Jurga, is it a summary of yesterday and today? However, missing the middle of a number of external factors, we do not see external factors in nature. It means our Urbanization is very fast, we are not ready for the climate and bad weather, and we did not do a good job. As we have local technical supervision on paper, but in reality it do not have. Indeed there are some missing factors, it is the controlling factor missing. We did so, finish controlling factor; let us consider the technical, social, and management factors. Therefore, we can consider these. Well as the driving force of stakeholders, stakeholders changed from the outset, this is also a cause. These are very important.

【**Moderator**】**:** Members have already spent some time for discussion of technical aspects.

Ron Sawyer: We go back and look, for planning, whether we can use another word? We need to consider flexible, adaptive management. Because sometimes it must is

changed depending on the environment, but also incorporating it into the changes over the years, because our environment is also changing. Perhaps this change is the factor leading to failure.

SUN Li-xia: There are a number of issues which can not be evaded, the conclusion is a summary of the whole six years, the toilet design is unreasonable, at least you should write on just now, saying there is no provision to re-purchase just now, but did not timely corrected, it inside and cause of design errors, it should be the correct thing, that sentence should be included, which is the last lesson inside. Cannot be generally state the design.

Ina Jurga: in fact it have, that the page in the management, we should maintained well and timely management, such as services, emphasis on the service, that is improvement, what I mean is the time to improve this problem and solve it.

SUN Li-xia: I wish to set up separate parts which explain the problems of toilet design. Not only described in the general problems of manage, because six years of experience must be true and accurate fine to write about. Toilet designe is unreasonable and caused the problem.

【Moderator】: I understand that Sun Zhuren says, for example, as we have now, because the question on the toilet, through these two-day discussions, especially from residents of the discussions, we think that this toilet design and choice, I began to think this is a major problem. Why do we not write it?

Zhu Qiang: I have a different idea, and I think all the problems, it is not just coming from the toilet. This afternoon, Peter had been explained to us, from where comes this smell? I had to visit these families many times; I have found that is, the smell from the urine. And then through the sewers. This is the main cause. So ventilating the pipe is also a problem. So we know that it will have some fecal odor. I think it is not a major problem. There are Different points of view, but I do not think that today's right place to discuss such a small problem, we just want from a macro point of view to look at and to see what lessons we have learned, it is my understanding. Thanks.

SUN Li-xia: Professor Zhu is right. I also agree what he said, these problems are seen clearly, but the toilet is the main core.

【Moderator】: Two-day summary of the discussions and a detailed analysis wil be summarized in a book in the future ,in each technical chapter, toilets this. I am not an expert anyway, I personally think that two days of discussion from this point of view, the smell is One of the main aspects, what is more, such as cleaning and fragile problem. I talked about a lot of this comes from the users who were complaining about it, there are many in this regard, the main is clean-up and easily broken as well as the use of sawdust, you have heard about these aspects many times, in fact the user complaints come from the toilet.

SUN Li-xia: All problems are caused by the toilet, so must write toilet into it.

Chen Xiangyang: This toilet design may some problems or it may not be the problem, but certainly there are problems in toilet manufacturer, the size is not precise enough, in China I have memorable experiences.

Ron Sawyer: if the toilet arise problems, then in the whole urine-separating dry toilets is in question, that is not work with the type.

SUN Li-xia: the process of toilet is not good. Professor Zhu said the return of odor, a large part of that is particularly strong l urine smell, as well as from the urinal, this trial after more than a year, shows this will not work; it is the most important reason of odor .

Peter: We are talking about China's standards, this toilet were manufactured and provided in Chinese companies.

SUN Li-xia: I think it will not evade this problem. The experts and gentlemen, ladies, do not need to avoid this problem, the toilet is not doing well, though manufactured in China, but who designed it? We can endure for six years, why can not write this clearly in the summary about this matter? We are looking for the world, the world in this field to promote these eco-health systems. Can Our Toilet re-use issues, we do not meant call to account, and there is nothing to be afraid of, why not write it into fairly.

Ina Jurga: indeed intends to write it in. This is a major factor, but I would also like to write out at last, why do toilet it is not good, did not meet its role, it still has some construction problems.

SUN Li-xia: Building problem can be written.

Zhu Qiang: No problem, you can write, but I do not agree the toilet is the only reason. It should be a major problem.

【Moderator】: We do not disagree, what are differences, but how to say? In fact, we have no essential difference between what Sun Zhuren say, we all agree. However, Mrs Sun said the project failed because the toilet. We say that this is a major reason.

Zhu Qiang: Be sure to be one of the factors which write in the final report.

SUN Li-xia: It should be the main reasons. If at beginning the toilet is not so complicated, so much wrong, I think this project did not need to open wrap-up sessions.

Madeleine Fogde: I agree with Ms Sun's statement, because this is indeed a factor. Who is going to do this clean, this persoins would know how's going on. She is not engineer, she is a housewife, and if the housewives are not satisfied, it indicates that it indeed has problems. We can not avoid this problem, we feel that this is indeed a major problem. We can write into.

Arno Rosemarin: We have 10% of the people, he like the dry-type toilets, using the best toilets. The couple, which the man is a pipeline maintenance man, and woman do sewage treatment, so this toilet is good for their home in general, ordinary people do have problems, we do not have to forget that 10% of people are satisfied with.

【Moderator】: We need to continue to go down. No problem. Go to management.

SUN Li-xia: Have the scheme been written into it?

【Moderator】: We have already had it ahead. We should be able to promote something that we could do, maybe it is management .But we should make them have a better understanding of the dry toilet system and the sanitation system. A good knowledge is also very helpful for the success of such project. Technology, of course, is one of the factors. Then we should know why we would use the dry toilets and how they work and so on.

【Moderator】: Personally, I believe that, the last is only a preliminary one. What the panel discussed this afternoon is precisely on the contrary. From the point of management and technology, in fact if it is between technical issues and management, just as Ina Jurga said just now, the issue could be asked reversely. After the technical

problems, the key stakeholder's confidence began to lose and lose and lead to management problems in the last.

Li Zifu: If you have technical problems, the timely feedback of management to improve this, of course, will promote the political work of this project. Otherwise, if there is no such feedback, the technology is still in use, and then there is a problem with the management system. Purely it is technical issue.

Sun Li-xia: I would like to add, the both sides must have a management team and a team of professionals to implement them in the future. Neither SEI nor Dongsheng District Government has done a good job, because the fluctuations is relatively large.

Zhu Qiang: We must have a comprehensive plan, not only the daily management, to manage such a project. The approach that we could not do at the beginning is not intelligent. I think that the technology should be more appropriate. There are other options and other alternatives. If we let them know what we want at the beginning, just as Ms. Sun said, there might not be so many mistakes.

【Moderator】: Yes, this is a very positive message. We should prepare to do an adequate feasibility study. We have to think about all the things fully, including an alternative analysis，so all of these are what we need.

Jiang Pei-Yuan: I think the failure is to make timely collection of tenants on the recommendations of the use of eco-sanitation systems and to make timely improvements after the completion of the first phase of the four floor, this resulted in this project to finally be failed. So it also has a certain impact.

Li Zifu: I think there is no time to feedback from the Daxing construction plan .But the feedback needs a time.

Zhu Qiang: There are two feedbacks in 2007, one is probably in March by the SPO, the other probably in May by the DPO，but only this is really not enough，so you are right.

【Moderator】: I have the impression that this is the beginning of the two-day meeting. As the host, I should take advantage of such an opportunity. All of us have a lot of experience and feelings on this project. We have exchanged a lot in the two days. But in the long run, I believe that the story of the Erdos, as an ecological sanitation in urban regional development and in the ecological health development,

will be circulated for many years. And we hope that the story of Erdos will still promote the ecological sanitation development and add a lot of value in the future for many years, rather than making this cause come to an end in regard of China's development in small towns and in the international development. This issue is not an end to sustainable sanitation sytsem. On the contrary, it provides a combined experience of such large-scale project of six years. These two days we did a systematic summary of the experiences Next we will make a summary on the base of the record，in the form of workshop summary material ,and feedback to others. Then a book which describes Erdos completely will come out in the next one or two years, I believe that, we will frequently mentioned Erdos and learn from the experiences and lessons in many similar studies and in the project of other parts.

Now, Ms. Madeleine Fogde will give us some concluding remarks.

Madeleine Fogde: I should make a final closing remark; I do not know whether you know what is an ecosanres? We are a global project, we have to promote sustainable sanitation solutions, particularly in developing countries, we provide Proficiency training and some other training, etc., as well as communication, exchange, and work like this in this area. We have done a number of exchange and communication, actually we have some other studies and other projects, the work we conducted in China is very active, and not only in Erdos, but also carried out a number of work in Beijing, Mr. Gao is our representatives, so we have been in Beijing, we will be in Beijing in the future, we have been working here the past two days, we have collected experience from Erdos , where we learned new things, and now we are still communicating with them.. This workshop is to understand this project in Erdos, we have also done a lot of records, and now we look back what the purpose of the project has been. SEI and Dongsheng District Government, can say that the project is very good, we have succeeded in some extent, if we are to look back to what degree of success, we have also taken account that there have some risks we have not been aware of, and we did not expect the extent or the result of the project. Such a city like Erdos, with its fast urbanization, we did not initially foreseen it, and then we were not flexible enough to solve this problem. Perhaps the Government was too busy, they didn’t solve this problem, or there was a lack of capacity to solve. We have a variety of reasons. So the urbanization rate is too fast. Of course, we have a lot of ideas in the beginning, but later it changed, and I am not going to talk about it.

Everyone talked about the failure, we do have some failures, because we do not achieve our expected results, but we also have a lot of other valuable results, for example, we have a lot of experience in the record, we have also done a lot of research, writing a lot of papers, for instance, some technical aspects of things, there is a lot of knowledge generated, as well as on the system's technical aspects, as well as the content of the social dimension, not just the technical aspects. We already have, and we will pick up very fast. We also producde some small, decentralized systems, but it is greener and more beneficial to the environment, especially for the dry region, so it is very good. We also have the eco-stations, we can also do research, study some instance, like nutrients, etc., in fact we still have two household accept the toilet, and have high level of acceptance, some are also very pleased. This has been as a result of this project, we also found that the toilet was accepted. In addition, we also involved local government who has given us encouragement. The local governments have been involved, but they have to face many problems, face a number of complaints, but they still remain strong and support us and trust us, gave us support. This is a very positive side. And we have a green community; it had been built up in the urbanized areas, this actually a typical example. This model is very important for the urbanization in China. If you just look at our residential area as beautiful, planning well, but we all know, there are some other issues. But the buildings are there, they are very good, we must realize that we do have some achievements; we should not only look at the failure.

How do we proceed? We must first come up with the proceedings, have it translated into Chinese, and then distributed to all those involved, in fact, from our donors we will evaluate, the projct. We will visit it next spring, to do some external evaluation. our today's meeting, etc., are very good to document them, and give them to do assessments, this assessment seems to have done in 2007 for six months. In fact there already have a number of issues, Jenifer McConville are also very helpful to us, She will actually write a book on Erdos, and she gathered some data, so, in 2010, when will your book be able to come out? SEI will continue to work and continue to release some kind of solutions of the ecological, sustainable sanitation. We will be in China in the future, and would also continue to support Erdos, of course, we'll support in another way through our knowledge notes, and we are willing to do it like that.

At the same time, we also hope Erdos Eco-town itself will continue, and then come up with more knowledge to carry out more research, so, we can also learn more and more things from Erdos in the future, because Erdos have this condition, we can learn a lot from it. Eco-towns, I really want the Erdos town to serve as a model in the future, but also be able to maintain its international reputation as an eco-city, because we have the system itself to consider its sustainability. There are several indicators, such as social acceptance, and now we have a system which is acceptable by society, but we have to solve environmental problems, to be related to the sustainability of other connotations. Time is also very good, we have come up with a model, I also hope that the experience from Erdos have the ability to give us some solutions, that's what we also need. Especially in urban-areas and where water is extremely scarce, such solutions are urgently needed. So Erdos is still very typical, and may also be improved.

Finally, I would also like to greatly thank all the people, thank you for your participation, to share your experience, we are missing these users, but they are headed, and I have to thank them for their participation, they have to endure the odor of these toilets which can not clean, they have endured for three years, I hope that they can hear what I said. I also like to thank local people of SPO and DPO, for your hard work and striving to find a solution, in order to service users as soon as possible, but in a responsible manner. I would like to thank all the researchers, you have come from Chinese's universities, and made a contribution to the development of the Ordos. Of course, we have some knowledge, we have international experts from Mexico, Nepal, there are some from very far away, not only made a contribution, but also possible to learn from you, as well as Ina Jurga, Guoyi Han, you have organized this seminar, we are willing to participate actively, they are very satisfied. And I would also like to thank our management team, such as SEI, Dongsheng District Government in Ordos, Ms. Sun, you worked very hard, actually I work beside the Arno Rosemarin, he was working 24 hours a day, We all go home, he began to contact with China, so he often stayed late at the office, we have so many people work hard, the two institutions do their best efforts, so I have to thank them.

SUN Li-xia: I would like to express my gratitude. I did not think this two-day meeting came so early, when the Government decided to change the toilet into water flush style, my feelings that you may not notice, I feel very sad. No matter how to tell,

I have devoted a full six-year effort in this project. Just like the problem I have talked with Professor Zhu , we are working like that in these six years, with enthusiasm and positive attitude, serious attitude, and leaving an unforgettable impression. Especially the SEI team, we have exchanged and exchange with Ms. Madeleine Fogde, the spirit of this dedication is very valuable. All of the SEI team left me with a good impression, the professional spirit, the spirit of dedicated and serious spirit, we have a consensus of all project personnel in Dongsheng District，and we are impressed with their dedication. Therefore, the project can be said to end in failure, but I do not see failures as experts and as Ms. Madeleine Fogde said, there are many success stories, as well as lessons for our world again to promote this project. I think no matter what team, which side to promote in this area, we will give you the story of Erdos, this is a good reference . On behalf of the Government, I'll thank the participating personnel who can speak their minds, have summary of our project and go back to our project fair and just, the involvement of this enthusiasm, I am very grateful.

Dongsheng District government leaders is to come to this meeting, but also mayor Han who in charge of this project, his name has also reported up, but because the principal leaders returned from the city, there are important meetings to be open, so he let me represents Dongsheng District Government, and thank SEI and all the staff and leadership of the Swedish side who have worked hard to create this environment for six years. We are heartfelt gratitude. Therefore, we thank you for all the coming and the support from project staff to our local government, and for the rapid development of urbanization, urban construction, provides us with a good environment, this concept is good, so we still quite happy and very grateful. Thank you.

【Moderator】: Our seminar has come to a successful conclusion.