The research and application of eco-drainage system in rural areas of Beijing

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content

1、 Background to the ECOSAN model project in Changping, Beijing

Project background:

- Introduction of the advanced environmental protection approaches in the world.
- Save water, save the resources and develop the recycle economy.
- Protect the environment, reduce the pollution in rural areas and make environment friendly
- Change the sanitation condition in rural areas and improve the farmers' life quality

Pre-preparation phase of the model project

Pre-preparation Phase

- Sino- Sweden , Sino-Finland, International environmental cooperation project.

  Powered by NDRC , Beijing NRC, Changping NRC, Cuicun Town Government and Erdos EPB
- NDRC and Beijing DRC Visiting Sweden and Finland since July 2004
- Holding Ecosan seminar
- Finnish experts working in China for half a year
- Donating four sets of ecosan toilets

Picture 1-1 Finnish company examining our products

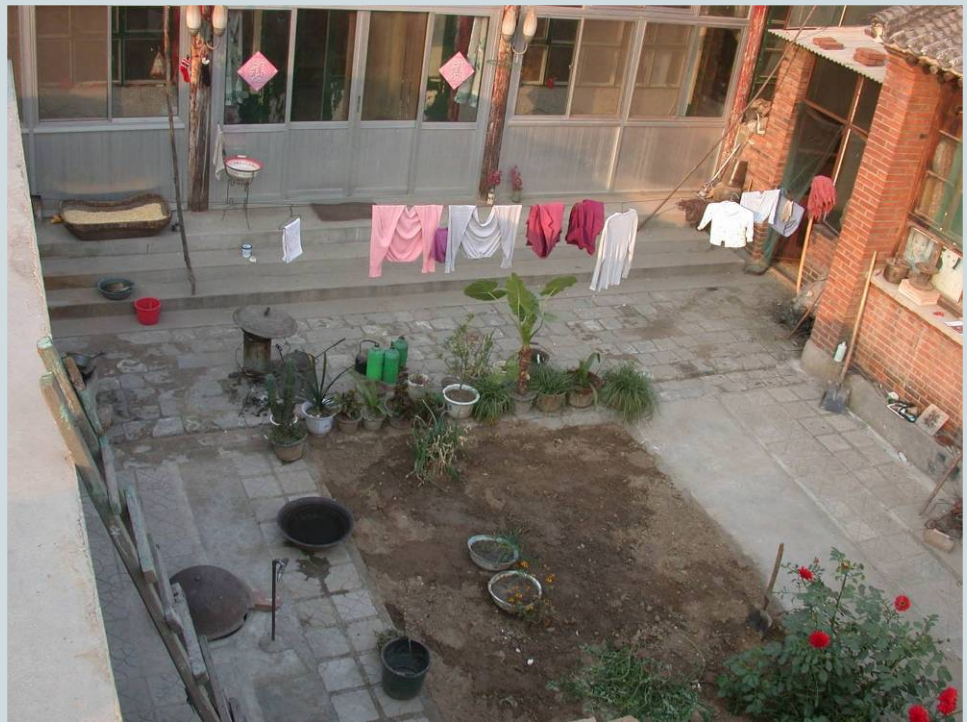
Picture 1-2 A dry system sanitation picture 1-3 A dry system of sanitation

The necessity and meaning of model project

- The situation in China – water shortage

  Flush water consumption(30-40L, occupies 21.9%-34.8% daily water consumption)
- Poor sanitary condition in rural areas
- Serious pollution, lack of sewage and waste disposal facilities
- The investment for traditional pollution disposal system exceeding the budget
- It is essential to solve issues concerning agriculture, countryside and farmers and to create a harmonious society for improving environmental quality
- Pollutant treatment: recycling economy

2. Status quo survey



Layout

2. Status quo survey

2. Status quo survey

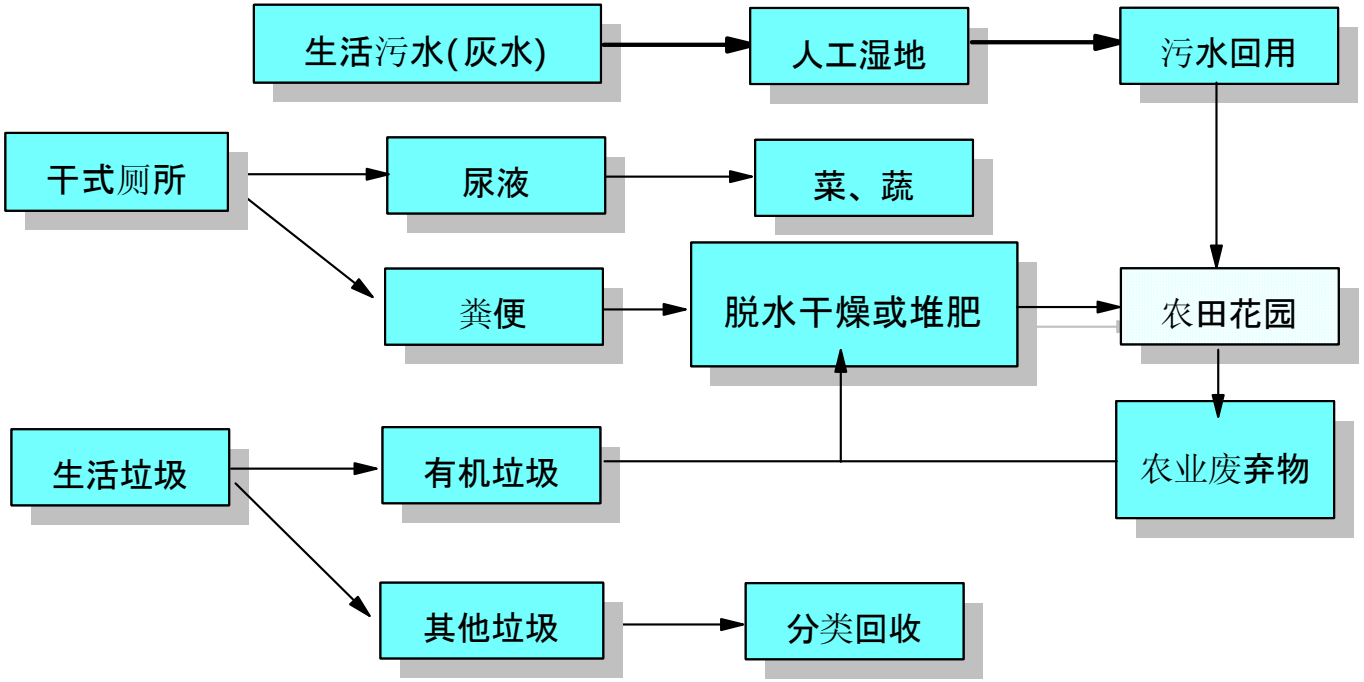
- Unauthorized open-air, dry toilet with simple functions
- No sewage disposal system
- Garbage disposal at will

dirty water everywhere due to lack of ditches

garbage disposal at will

2. Status quo survey

Solution to ecosan system in Nanzhuang, Cuicun



- Ecosan toilet system
- Waste classification, collection, treatment system
- Sewage and artificial wetlands treatment system

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3. Model project introduction

Before and after ecosan toilet renovation.

Logo

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Before and after ecosan toilet renovation.

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Before and after ecosan toilet renovation.

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3. Model project introduction

- Greywater treatment system
- Courtyard sewage treatment system
- Street sewage treatment system
- Garden style sewage treatment system

3. Model project introduction

- **Garden style sewage treatment system**

  Pre-buried sewage treatment facilities in the courtyard, as shown below, occupy no field, consume no energy, use the soil and plant eco-system to purify grey water.

3. Model project introduction

Street composite eco treatment system

Pre-buried treatment facilities in the open street make use of the room to harmonize the scenery

3. Model project introduction

For leisure, amusement and fitness

Environmental economic benefit

- See below table: the economic benefit of ecosan systems for one thousand residents annually. Total economic benefit is RMB 27361 Yuan.

	TN	TP	K
Person (kg)	4.55	0.58	0. 46
All villagers(kg)	4550	580	460
Be equivalent to fertilizer	10833*	2071*	885*
Economic benefit (Yuan)	20366	5322	1673

* Nitrogen, phosphorus and potassium are calculated by urea, diammonium phosphate and potassium chloride

N,P AND K in human excrement equivalent weight calculation

Water saving

- Save 10,950 tons of water/year per thousand residents, worthing RMB 16425 Yuan per year

* It saves flushing water used in flush toilets. calculated by 30L/person •day, the water price is RMB 1.5 Yuan per ton.


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Prospect and meaning of project

- Saving water can become a model of a conservation-minded society in the whole villages, towns and cities.
- Effective control over rural daily waste can reduce the pollution source. The cost drops down a lot compared with the traditional treatment way. It fits the rural areas without sewage treatment system and imperfect sewage pipe network.
- Organic fertilizer is used for agriculture. It is helpful for recycle. It creates refined agriculture to meet the idea of circular economy
- It becomes important measures to create harmonious society that improves farmers' life quality, solves the issues concerning agriculture, countryside and farmers
- It is helpful for renovation of an old towns and building a new socialist countryside

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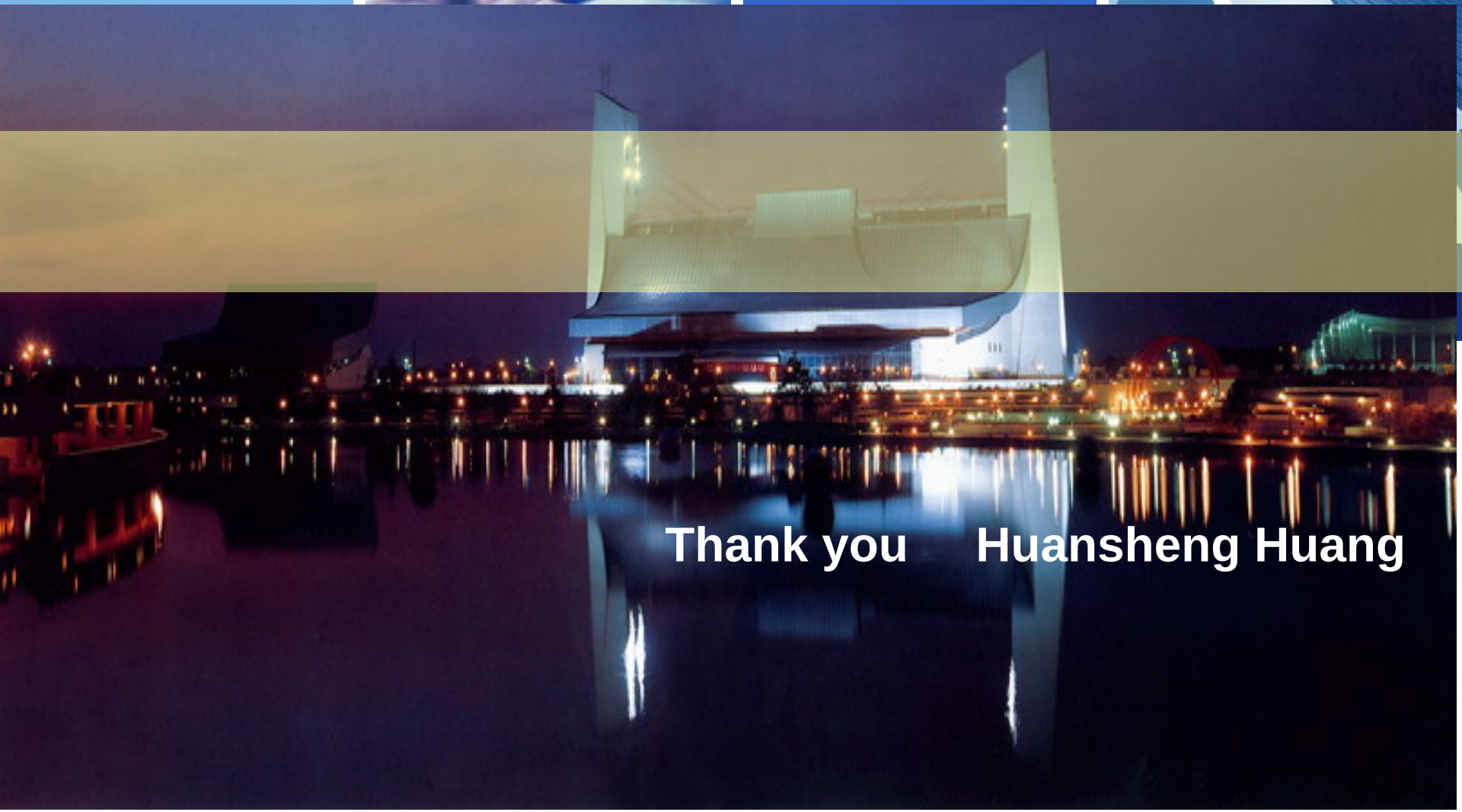

Thank you Huansheng Huang