



教育和培训
在生态卫生项目中的重要性

Importance of Education and Training in Ecosan Projects

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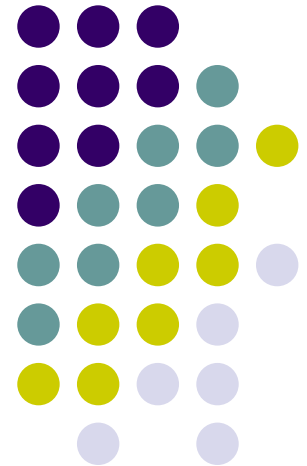
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2007国际生态卫生大会

2007 International Conference on Sustainable Sanitation

生态卫生与环境友好型社会建设

Construction of Ecosan and Environment Friendly Society



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前言

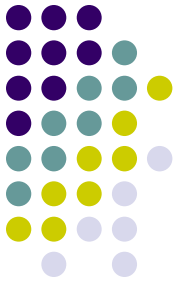
Preface

- 目前世界上有260万人没有安全饮水和卫生设施
- 2.6million people are lacking of safety drinking and sanitary facilities in current world
- 其中最大的受害者是农村的儿童
- Of whom the most victims are rural children
- 很多的疾病都是由于水与卫生的不良条件所致
- Many diseases have arisen from unfavourable water and sanitary conditions
- 校园卫生是一个亟待解决的重要问题，而这个问题的解决不止是要建设硬件设施，还必须包括健康与卫生的教育和服务。
- The campus sanitation is an important issue to be urgently addressed



快乐生态校园项目

Happy Eco-campus Project



项目建在山西省一所农村中学:

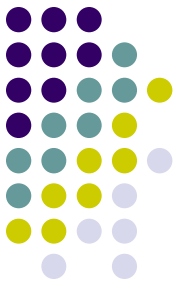
One rural primary school was set up in Shanxi Province for the Project:

- 由新加坡连氏发展援助组织 (**LA**) 资助, www.lienaid.org
- Aided by Lien Aid (LA) of Singapore, www.lienaid.org
- 项目的实施是由 **LA** 与农业部能源环保技术开发中心 (**CEEP**)、中国扶贫开发协会 (**CAPAD**), 以及世界厕所组织World Toilet Organisation (**WTO**) www.worldtoilet.org 共同完成的。
- The implementation of project was jointly completed by LA and the Center of Energy and Environmental Protection Technology (CEEP), and China Association of Poverty-alleviation & Development (CAPAD), as well as the World Toilet Organization (WTO www.worldtoilet.org).



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快乐生态校园项目概况

Overview of Happy Eco-campus Project

项目位于: 山西省天镇县赵家沟中学

The project was located in: Zhaojiagou Middle School, Tianzhen County, Shanxi



Zhaojiagou Middle School
赵家沟中学

Situated in Tianzhen County under the jurisdiction of Datong City, the Northeast of Shanxi Province

位于山西省北部，隶属于大同市的天镇县



快乐生态校园项目概况

Overview of Happy Eco-campus Project



项目内容:

Project Coverage:

- 生态卫生系统, Ecosan System
- 集中供暖系统, Centralized Heating System
- 卫生与健康的教育和培训. Education and Training on Sanitation and Health

项目目标:

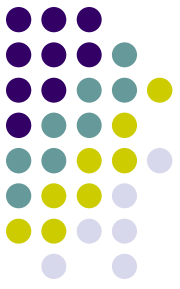
Project Targets:

- 校园卫生系统达到可持续化、生态化
- Campus sanitation system to reach the sustainable and ecologic standards
- 校园供暖系统达到安全、温暖 Campus Heating System to reach safe and warm standards
- 营造舒适安全的校园学习生活环境, 从整体上提高学校的健康水平 A comfortable and safe campus learning and life environment to be created, so as to enhance the health level of the school in an overall manner
- 提高学生们的卫生、健康和环境的认识 The students' awareness of sanitation, health, and environment to be enhanced



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原有供水与卫生状况

Original Water Supply and Sanitary Conditions

当地供水不足，校园内没有供水管网，厨房是唯一的供水点。

Local water supply was deficient and no water supply piping network was available on the campus. Kitchen was the only water supply point.

就在项目开展前，当地政府开始建造一套新的供水系统。

Just before this project was started, the local government had begun to built a set of new water supply system.



原有供水与卫生状况

Original Water Supply and Sanitary Conditions

厕所脏乱，没有洗手池

Toilets were dirty and in disorder, without handwashing basins.



- 半个屋顶, Half roofed
- 无私密性, Without privacy
- 开敞的蹲坑和粪沟, Exposed squatting pits and manure channels
- 粪便堆积, Heaped faeces
- 冬天粪便冻成堆，夏季蝇蛆为患 Excreta frozen into heaps in winter, and flies and muckworms bringing about disasters in summer



原有供水与卫生状况

Original Water Supply and Sanitary Conditions

- 校园内有一垃圾池，但厕所内仍有大量废塑料袋、包装纸，致使粪便无法被用作农家肥。孩子们缺乏环保意识和卫生教育。
- There was one refuse bin on the campus, but lots of waste plastic bags and packing papers were still seen in the toilets, which has caused the failure for faeces to be used as farmyard manure. The children are lacking of awareness of environmental protection and sanitary education.
- 每年清淘厕所两次The toilets were cleaned out twice a year
- 每次花费 500-800 元请人清淘，更增加了学校的经济负担。
RMB500-800 was spent for people to be invited for cleaning, which had added to the school's economic burden.

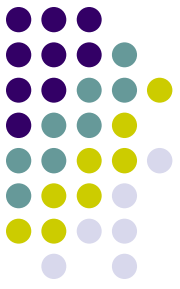


由于缺乏设施和教育，孩子们没有良好的卫生习惯。

Children do not have good sanitary habits for being lacking of facilities and education.

解决之道：生态卫生

Solution Approach: Ecosan



硬件 – 生态卫生厕所：

Hardware – Ecosan Toilets:

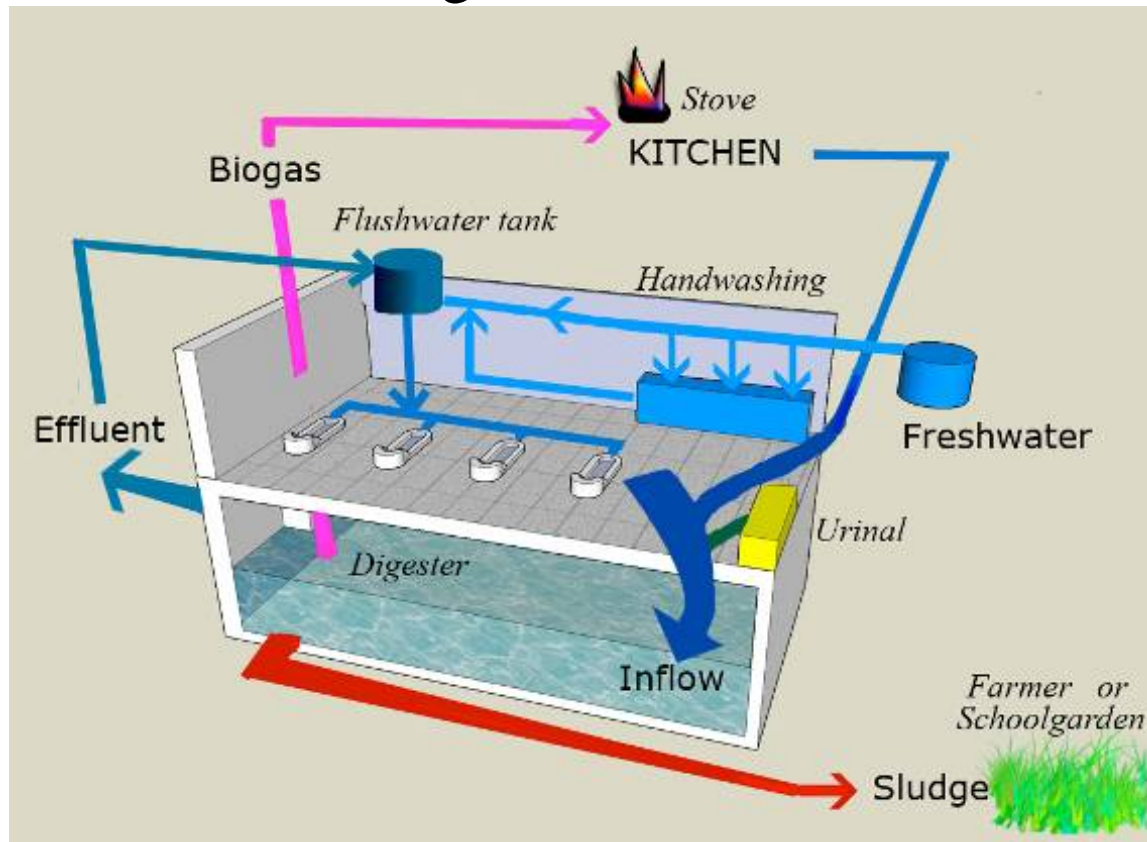
- 生态卫生理念的厕所，并将沼气池的产物-沼液、沼渣作为肥料用于农业生产；
- Toilets considered in an ecosan conception, and the products of methane tank – biogas liquids and biogas residues applied as fertilizer to farm production
- 依据国家标准、按照学生人数设计的男女厕，不仅满足数量上的需求，还提供私密性空间；
- Male and female toilets designed as per number of students according to government standards, to not only meet the demand in number, but also provide privacy spaces
- 沼气池粪便污水起到卫生处理作用，并产沼气用于做饭；
- The blackwater of methane generating pit sanitarily disposed, and biogas produced for rice cooking
- 洗手池为孩子们提供个人卫生的条件；
- Handwashing basins to provide the personal sanitary condition for children
- 循环使用洗手废水和沼液来冲厕，达到节水目的。
- Wastewater and biogas liquids used for flushing toilets in circulation, to achieve the water saving purpose



解决之道：生态卫生 Solution Approach: Ecosan



原理图 Schematic Drawing



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解决之道：生态卫生

Solution Approach: Ecosan

建造的新厕所 New Toilets Built



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Training and School Sanitation Committee

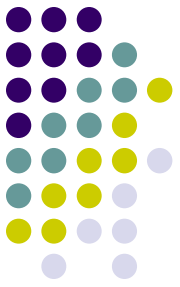
软件 – 培训教育：保障生态卫生的可持续性和有效性

Software – Training and Education: To secure the sustainability and effectiveness of Ecosan

对包括校长、老师、学生和校工进行上述设施的使用和维护知识的培训；

Training to schoolmasters, teachers, students, and school workers for the knowledge about use and maintenance of abovementioned facilities

- 选择一名学校教师参加省农村能源办举办的沼气工培训，系统学习沼气工程的原理、运行和维护；
- One school teacher was selected to attend the biogas engineering training organized by Rural Energy Sources Office, to systematically learn the principle, operation, and maintenance of biogas engineering.
- 对学校师生进行卫生、健康和环保方面的培训；
- School teachers were trained in the respects of sanitation, health, and environmental protection.
- 提供资料等，帮助学校教师在以后的教学中继续卫生、健康和环保内容。
- Data and materials were provided to help school teachers with follow-up sanitation, health, and environmental protection events in later teaching.



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学校卫生委员会:

School Sanitation Committee:

为了配合项目，校方成立了由四名教师和30名学生组成的学校卫生委员会，并有一名校长监督主管。

- In order to cooperate with the project, the school party established the School Sanitation Committee composed of 4 teachers and 30 students, and one schoolmaster was designated as the supervisor.
- 校卫会参加每次的卫生培训
- The School Sanitation Committee attended all the sanitary training events.
- 在同学中宣称普及他们所学到的知识，并负责卫生厕所的维护管理。
- To publicize and popularize the knowledge they had learned among students, and to take the responsibility for maintaining a sanitary management of toilets
- 在项目培训人员的帮助下，校卫会制订出了《入厕公约》和《卫生制度》，指导全校师生如何正确使用这个沼气卫生厕所，培养良好的卫生习惯，并规定值日生的值日内容和职责。
- Under the assistance of the project trainers, the School Sanitation Committee worked out the “General Convention for Entry into Toilets” and the “Sanitation System”, to guide all the teachers and students of the school as to how to correctly use this biogas ecosan toilet and how to cultivate good sanitary habits, and at the same time to specify duty contents and responsibilities of students on duty.



培训与学校卫生委员会 Training and School Sanitation Committee



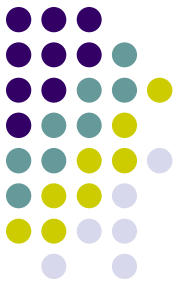
培训与学校卫生委员会

Training and School Sanitation Committee



培训与学校卫生委员会

Training and School Sanitation Committee



关于值日的《卫生制度》：

“Sanitary System” with Regard to On Duty:

每周有一个班负责卫生。小组长监督，组员配合。发现违者由他来打扫。

- One class is to be assigned for sanitary responsibilities for one week, with group leader to supervise and group members to cooperate. Any violator found shall do the cleaning.
- 每天用清水彻底清洗一遍便器。
- Urinals and closets must be thoroughly cleaned with clear water everyday.
- 每个课间最后检查关闭所有冲水阀门，冲洗小便槽。
- All the flush valves are to be closed and trough urinals are to be flushed in the final check during each break.
- 天窗保持常开，如有异味，打开风扇换气，并报告老师。老师（或联系当地农村能源办）检查并予以解决。
- Skylight windows are to be constantly open. Exhaust fans should be turned on for ventilation if there is any off odour, which is also to be reported to teachers. Teachers shall check and solve it (or contact the local energy sources office).
- 各种池盖不得擅自打开，以免沼气泄露。

It is not allowed to open respective tank covers without authorization, to avoid leak of biogas.

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《入厕公约》：

“General Convention for Entry into Toilets”

- 按秩序排队入厕。入厕后要随手关门，夏天防止苍蝇进入，冬天防冷风进入。
- Stand in line for Entry into toilet in order. Close the door immediately after entry, to prevent flies from ingress in summer and to avoid cold wind from inbreak in winter.
- 爱护厕所里的各种设施，有些阀门是禁止开关的，更不准随便使用灭火器，以免冻伤。
- Take good care of all the facilities in toilets, make sure what valves are not allowed to open or close, and moreover nobody is allowed to use fire extinguishers without authorization, to prevent from freezing injury.
- 保持厕所的卫生、清洁。下雨、下雪天，进门要跺脚，千万不能再墙上乱写乱画，如果查出罚擦墙壁一周。
- Keep toilets sanitary and clean. Stamp feet before entering the door during rainy and snowy days. Be sure that nobody is allowed to scribble on walls, and any violator once found shall be subjected to wiping the walls for one week.
- 要便在槽内，不准随地大小便，一经发现罚擦便池一周。养成便后要冲水的良好习惯。经常保持便池清洁卫生。
- Urinate inside the gutter and it is strictly prohibited to relieve anywhere. The violator once found will be subjected to wiping urinals and closets for one week. Cultivate the good habits of flush after using the toilet. Keep maintaining the urinals and closets clean and sanitary.
- 手纸等要随手放入纸篓里，不能丢在地上，更不准丢在便池内，以免堵塞。如发现乱扔者罚到一天纸篓。
- Put the toilet paper readily into toilet paper baskets, and nobody is allowed to throw it on the ground, and moreover inside the urinals and closets, to avoid blockage. The violator found is to be subjected to dumping toilet paper baskets for one day.
- 节约用水，文明用水，饭前便后要洗手，不能玩水，更不能把水淋到地上，防止滑倒自己或别人，特别是冬天以防结冰。
- Save water and be civilized in using water. Wash hands before eating and after using toilet. It is not allowed to play with water, and moreover to sprinkle water on the ground, to prevent yourself or others from slip, especially to avoid icing in winter.
- 禁止将垃圾倒入水池、便池、便器内。应将垃圾倒入垃圾池。
- It is forbidden to dump rubbish into water tank, urinals, and pan closets. Dump the garbage into waste pits.
- 在厕所内严禁吸烟、玩明火，以防爆炸。厕所外严禁烟火。相互监督。
- It is strictly prohibited to smoke and play open fire inside toilets, to prevent burst. Smoke and fire are strictly forbidden outside the toilets. Mutual supervision is encouraged.

结论

Conclusion

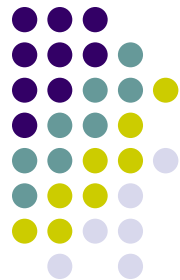
- 通过这个项目的实施，我们认识到要真正提高一个地方的卫生健康条件，提供硬件设施的同时必须伴随培训和教育；
- Through implementation of this project, we have realized that training and education shall also be given while the hardware facilities are provided for the purpose to truly improve the sanitary and health conditions of a place.
- 对学校项目而言，这种培训和教育并不是只对学生的，还要包括教师，特别是校长，因为他们是学校的管理者和决策人，对学生行为和学校发展的指导和导向作用至关重要；普遍来讲，培训应不只对用户，还应包括管理部门；
- Speaking from the school project, such training and education should not only be aimed at students, but also for teachers to be involved, and especially schoolmasters, as they are the managers and decision makers of schools, which is extremely important for them to supervise and guide students' behaviors and school development. In general, training shall not only be targeted to users, but also for management departments to be involved.
- 培训的内容也不仅仅限于对新设施的使用，而应包括作用原理、健康理念、环保知识，因为后者将会对孩子们的一生以及我们的未来更加重要；
- Training contents shall not only be limited to use of new facilities, while the functional principles, health concepts, and know-hows about environmental protection are also to be covered, as the latter will be more important to the whole life of children as well as our future.
- 培训不只是给予，更重要的是要激发被培训者的兴趣、自我意识和自觉性，并促使此方面的内容融入到学校的日常课程中，这样才能保证项目的可持续性；
- Training is not only to give, and what's more important is to excite the interest, the self awareness, and self consciousness of the trainees, and to facilitate the contents in this regard to be fused into the routine courses of schools, thus to ensure the project sustainability.
- 通过培训和教育，提高人们的健康环保意识，培养良好卫生习惯，以此从整体上、根本上提高农村的卫生健康状况。
- Training and education should be given to enhance people's awareness of health and environmental protection and to cultivate people's good sanitary habits, thereupon to improve the sanitary and health conditions in rural areas in an overall and radical manner.



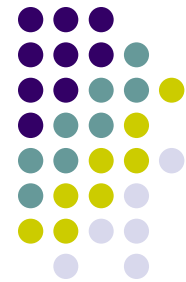
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谢谢！
Thanks!



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