



The Route of Recycling

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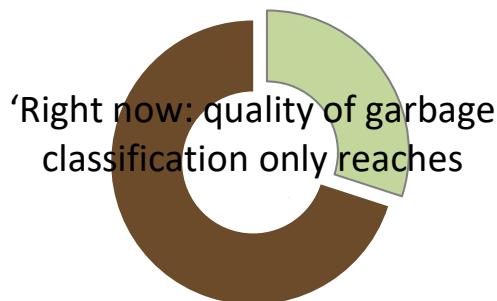


Garbage Classification

By separating waste correctly, valuable raw materials are retained and new products can be made with them. This ensures that less waste goes to dumping grounds, which is cheaper and better for people and the environment.

Xishan Community

- 665 households
- Started garbage classification In 2006
- One of the first green communities



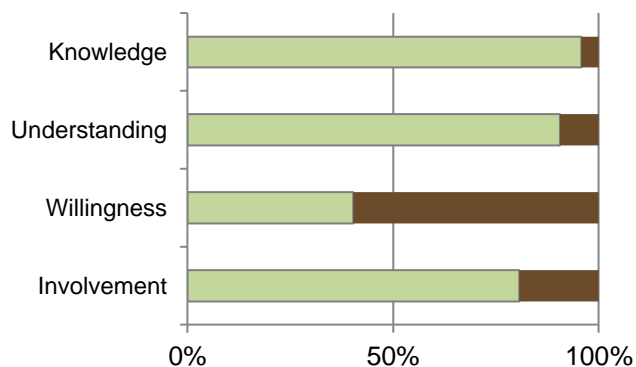
Problem Analysis

Nowadays, people are responsible for **0.74 kilograms** garbage per person, per day. All this waste needs to be processed this costs a lot of energy. The main problem is finding the best solution for processing all the waste in an environmental friendly way, whilst involving the whole community.

Research & Survey

Founded the following problems:

1. No willingness of residents to spend time and effort on garbage classification due to lack of awareness about the importance
2. Waste of human resources: workers clean the bins over 8 times a day
3. The current kitchen waste treatment machine uses way too much energy and produces a lot of heat while it's operating



Perspective of the issue

How to solve the problems:

1. Create willingness co-operation of the community residents
2. Improve time efficiency of the workers
3. Make the kitchen waste treatment more environmentally friendly

Our design is made to involve everyone of the community; by educating people, result will show. The children will be thought about the benefits of garbage classification in school and there will be an opportunity for the adults to attempt a workshop to exchange knowledge.

Second part of the solution will contain a new design for the trash bins. The ones throughout the community will get a QR code, which can be scanned to find out what kind of garbage needs to be disposed. The current collection area will be transformed: by using new techniques, the bigger trash bins will have an underground part, so that the garbage can be stalled for a longer time.

The high energy needed machine will be replaced by a biological chain, using 'black soldier flies'. These insects will turn the food waste into useful faeces.



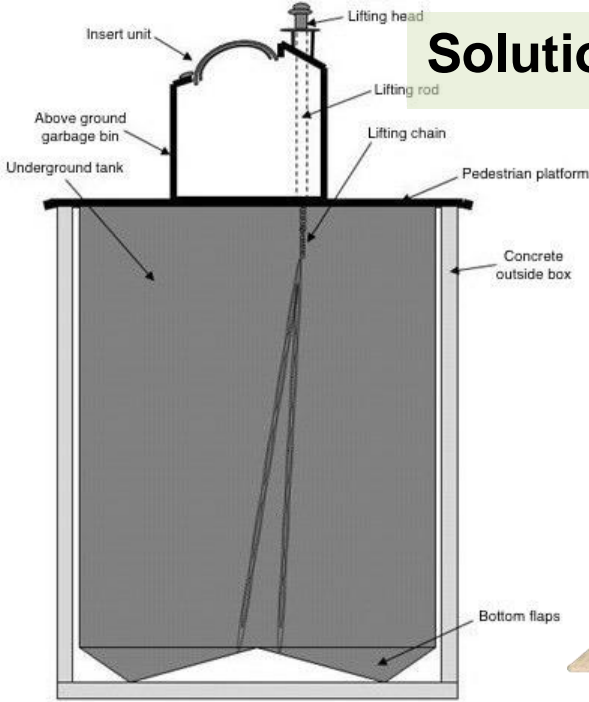
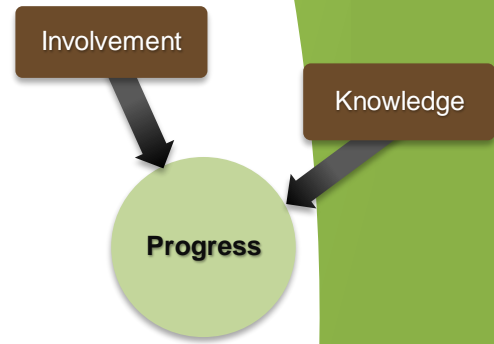
Solution 1: Spreading the knowledge

The Children:

Starting early education about the environment and recycling benefits to the younger generation will be a long-term benefit for the best cooperation results.

The Adults:

Involving the residents of the community, asking for their opinion about the proposals will be important for a fully partaking attitude towards the applied solutions.



Solution 2: New garbage bin design

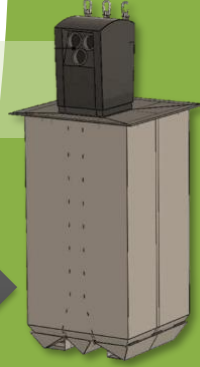
Components

Above ground garbage bin:
Where the collected trash will be thrown away.

Underground tank:
Where the trash can be stored for over two weeks.



The above ground bin



Solution 3: The biological chain

To lower the impact and costs of the waste treatment, a new way of processing will be practiced: with the use of black soldier flies. This is a kind of insect that will digest the kitchen waste and turn it into faeces, which can be used as a fertilizer. After this digesting process, the black soldier flies can be used as feed for fish and chicken.



Solution 4: Online garbage classification

The new bins around the community will be provided with a QR code, so everyone can look up (in an online program) how to separate their waste correctly.

Not only information will be spread correctly with this system, the residents will also receive rewards when using the system and thus actually separating their waste correctly.



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