

Ideas and feasibility study of a Low Tech Recycle Project in Zaatari Camp

Dear Reader

Following my return from a 10 day trip to Jordan, I would like to send to you this report. First, you will find a small selection of ideas I find feasible to implement right now by any actor. Following these bullet points, I continue to assess the feasibility of a small development design project where low tech products are produced using solid waste (any target community concentrating on any target area/cluster that is of interest). This is followed by a short description of why I personally want to realise a project along the lines proposed.

Naturally, the proposed [big 1 Million Dollar project](#) in India and Jordan can be adapted to any cause or funding that is applied to the central spirit of this project. Continuing the completion of the project proposal that you have received during my visit, I have found new databases full of products that can be built in and for ongoing projects or new projects.

However, I am certain that a small pilot project in the camp that uses more solid waste to improve living conditions would be revolutionary for post emergency refugee camp management. Education, agriculture, income generation, gender, empowerment and self-sufficiency would be positively affected, according to my understanding of development. Maybe some of you see the opportunity to reach out to one another to make this possible. I surely am!

I hope to be able to work with you.

Kind regards,

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Selected Ideas

- Use **bottle lights** to bring light into wash or cooking facilities in the camp during the day.
- Use **wind sails** mounted on self-build carts during windy days and provide a form of taxi on the street surrounding the camp.
- Use stone or plastic as a choke point inside the end of water pipes to create a low cost push in **water tap** to open WASH facilities again.
- Use all the stones and solid waste around to build **little walls** (winter is coming) in order to assure a safer and more even distribution of land and water as well as additional protection for tents. This will become important to support and foster individual agricultural projects as well as a preventive measure in case of floods.
- Set up **solar streetlight systems** using LEDs in durable plastic bottles to wash facilities along the existing electricity lines.
- Include a **cost recovery model** to add sustainability to the projects themselves. By manufacturing facilities and tools instead of buying them (Education, Furniture, etc.).
- Build products that **first arrivals** need to buy or have to bring in from the outside (transportation, furniture, household items).
- Utilize, provide access to and build energy systems for the **roofs** of the houses.
- Implement **wind energy** production and an energy sell back mechanism to promote renewable energy and free energy trade (additional income for households).
- Illustrate low cost shelter building methods and alternative **water storage systems** using plastic and stone.
- Build educational **games** for children out of solid waste in educational facilities/projects.
- **Electricity** is a major danger and existing infrastructure can be reinforced and insulated.
- One of the NGOs will bring a **3D printer** into the camp. A 3D printer brought into the camp could be used to build structures or tools that do not have to be imported otherwise (most useful: wheels, Fool prove taps...).
- Build **cardboard furnace systems** for the winter.
- Install compact **agriculture systems** in every project using urban vertical gardening.
- Use **composting** to reduce biodegradable waste and promote agriculture.
- Cases of aggressive hoarding of specific items have to be made more viable (I found a tent filled up to the top with big bags of dried bread). Make this process more efficient to use old bread as a source of **food stock for animals, energy production and maybe heating** (that are all over the camp, presumably illegally).

Feasibility of a low tech design workspace in Zaatari camp

Having access to analyse existing inventions and the solid waste of the community, I have come to the conclusion that a major variety of products can be produced out of what is commonly regarded as solid waste. Private contractors already separate the solid waste on sight, these among the currently existing clean-up projects run by NGOs would be able to provide a reliable supply of building materials.

As can be seen from the archive of pictures, there is a small constant supply of plastic bottles (ca. 100 a day or more). A very big supply of biodegradable waste, plastic bags, plastic wraps, paper and cardboard. A smaller flow of maybe 20-30 bottles a day of solid plastic canisters and bottles from cleaning

to beauty product related shapes. Some solid metal as well as various parts of tents can be found but are already hoarded by the community and sold in bulk.

The agricultural production of the camp just seems to have started. Vegetables consumed raw were clean and eatable. Agriculture has a huge potential to empower the community given that vertical and urban gardening methods were totally unknown and income could be generated. Educational products for children are also in very high demand and could be sold to the children for 0.01 JD opening their eyes to the ability to reuse and alter solid waste to make toys. However, household items and shelters are the most viable and most life changing products that can be provided given that many could extend or expand their house and improve their quality of life using solid waste.

A location for the workshop can be set-up in previously destroyed wash facilities close to basecamp. Some great locations are recorded in the archive in the Wash structures picture folders. One should start a project on producing vertical garden structures out of bottles or bags and toys. After increasing interest household items will be produced and distributed.

Risk for a project

Security

Water is a sensitive issue but the farming already in existence shows that more land will be used for agriculture in the future. Structures can be erected underground to protect grey water from black water.

Project has to have a viable concept of security for night time and off duty times. The closer one is to the basecamp the safer the environment.

Bathroom for children close to playground is destroyed. Scarce availability of facilities due to construction and repurposing. These now abandoned places already have some base structure on which one could build a workshop

Legal

No houses out of stone are allowed and no structure higher than 2m can be erected. Make sure that regulations are followed by digging into the ground and building temporary structures that are partially immersed into the ground.

Various changing regulations towards farming and what constitutes as a possible explosive substance. No Biogas for example. One has to assure transparency to the camp management.

Social

The idea of public property is not at all accepted in the community. The District 1 and 2 Wash facilities are totally dissembled and others are closed because of missing taps.

Already beginning agricultural production so there is limited space available (solution vertical gardening).

In addition, the stones that are already used as building material from the vicinity of the camps to free up more resources like water drums and wheels.

Income generation of project

Apart from asking the community to pay for the produced products the project could set up a plant nursery for more delicate plants and sell them when they are strong enough to survive brown water and harsh winds.

Training courses for woman and children to teach them how to produce basic items.

Community translates the compiled product catalogue into Arabic and sells it among one another or in the shop (Free public samples given to NGOs, community organisations and selected stakeholder of the community).

Research Notes for the development design project

Production of products

Garbage collection already in place. Informal waste separation and selling of by contractors responsible for the waste removal (higher danger that NGOs are used by external contractors).

There is waste throughout the camp (waste water, solid waste, bins that have not been emptied).

Psychosocial

Gardening ideas and farming ideas are generally very well received and with a lot more interest than any other ideas shown to adults.

Lights are broken or stolen. An opportunity to spread the use of LED plastic bottle lights. So cheap that children can do it at the schools. (UNHCR Solar lights can be found on the market depending on size between (2-3JD, 7-10 JOD and 15-17 for very big lamps).

Some people say that the youth is ready to work projects that involve waste as proud "engineers".

Think of involving the host community as well as the refugees into the system in order to further promote acceptance of immigrants into the Jordanian community.

A lot of pride in the camp and what people have done with it. Therefore they might be less inclined to work with garbage.

Project would make more sense with young people and woman given their readiness to work with plumbing and other building related jobs. (Maybe no further focus on artisan work but rather on more productive cost recovery methods such as gardening, games and furniture production).

Some ideas are already working in the camp and this project would further environmental consciousness.

Already existing clean up campaigns by NGOs can be used to spread awareness of the use of waste.

Pragmatism

Re-Development of Wash infrastructure – project implementation of my proposed project.

Agricultural Note: According to Farmer the land has to be turned and washed a bit (some pollution).

Trash collectors: bottle in trash more common in rich areas. Find a lot of organic waste (compost), find some electronic waste (tools for children), find Arrak bottles but no other glass bottles, a lot of tin cans, some bigger plastic sheets and tent parts, a lot of cleaning bottles, plastic bags. Looking at the pictures but there is enough plastic waste to make it worthwhile for the current private contractor to sort out plastic and cartons at the trash collection site close to the camp.

Needs

Ducks and Chicken are already raised in the camp... provide healthier living conditions for animals.

Children: Over 300 children on small playgrounds, need for more games – educational games expert in India. Using trash, too hot for children, among various complaints.

Destruction of Wash units and sell off from food aid shows need for more development and social space development.

No street lights, no real shelter (after 7 month), no Mosque ...

What is my personal expertise and role for the project

I have conducted a similar project in a slum in Pune, India the last year. This past project has been successful and was supported by NGOs, a University, businesses and the local civil society. The resulting product that is now used in the slum is a low cost water heater made partially from recyclable materials. It is my ultimate goal to be involved in the realisation of the project in order to assure an effective product catalogue which is compiled. The translation and its distribution to stakeholders shall change the traditional development approaches of international development NGOs.

Regarding my more distant past, I worked in NGOs, think tanks, a lobby firm and universities and have a broad understanding of globalisation, recycling, empowerment and research.

My CV as well as all mentioned documents and pictures can be found [here](#).