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1. Effectiveness of Eco-Toilets' Management in Public Places, Case of Kigali City

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2. Country, Province/Region, District, Town / peri urban area

Nyarugenge District, Kigali City the capital of Rwanda

3. Initiator of the 'Best Practise'

The best practice was initiated by Rwanda Environment Care (REC), a local private association.

4. Background of the initiative

Kigali is the Capital of Rwanda with a population of 900,000 and square meter of 750 km². It is located at the center of country and characterized by hills and rivers including Nyabugogo and Nyabarango in the south. The city is built in hilly country, sprawling across about four ridges and the valleys in between.

It is a growing city and has a high rate of economic growth as well as extensive building construction. Lack of enough and adequate sanitation in the city as well as lack of proper technology of human excreta disposal is a crucial challenge in sanitation.

Even if Kigali is characterized by green hills, sanitation remains the crucial problem for the entire city. According to UNICEF & WHO (2010) only 50% of the population has access to improved sanitation in urban areas of Rwanda. As Kigali city is growing day by day, sanitation becomes a challenge and it is not easy to find a public toilet facility in less than a mile. Rwanda Environment Care took the initiative to build public toilets in order to help the local authority in improving hygiene and sanitation within the city. Rwanda Environment Care came with new ideas and innovation in water and sanitation including the introduction of ecological toilets in the year 2006.



5. Description of the initiative

The new technology allows the recycling of human excreta into fertilizers. Due to the design of toilets, fecal material is collected in one pit, ash is added and metallic sheet paint in black allows the solar energy to penetrate into the pit so that the fecal material is quickly dried and can be removed after a period of time and used as fertilizer. Currently, Rwanda Environment Care has 4 public toilets operating properly in the city of Kigali. As far as excreta handling and management are concerned, the toilets are equipped with vaults which serve to collect them and in which the preliminary composting process takes place. The vaults are exposed to sunrays and vaults doors are painted black in order to facilitate the composting process. Once the vaults get full, the toilets are decommissioned for a period of at least three months during which the feces are left to compost. After the composting period, the heap is put into sacks and left in dry place to complete the composting and this allows the vaults to be used again.

The project started with a few challenges. As the technology was new, it was necessary to carry out a pilot project in order to know its feasibility. Training was then carried out for technicians as well as for beneficiaries on how to build, use and produce fertilizers. Another challenge was the cultural behavior, where people consider the use of human waste compost as a taboo. This requires making people aware of the importance of this technology as it has benefits for both environment and economic growth. Once this objective is reached, Rwanda Environment Care will be able to promote sanitation as a business.

6. Major drivers of the process and success

The Rwanda Environment Care (REC) Association was initiated by some graduates from Kigali Institute of Science and Technology (KIST). The main objective was to bring a sustainable and innovative solution in water and sanitation where sanitation could be a solution to the development instead of being the main source of water and sanitation related diseases which are the main cause of infant mortality of children under 5 years. It has been working to address the persistent problem of lack of enough and adequate public toilets in Kigali City. The organization has also realized several projects in the country, in public places, schools and and at household level in collaboration with different partners such as UNDP/SGP, UNICEF, Kigali City, Water for People and Government Institutions. The Association is currently led by Mr. Valentin MUCYOMWIZA who is coordinating all the activities related to administrative issues while Mr. Theodore DUKUZIMANA follows the technical part of the project. Apart from these leading people, the project comprises a certain number of workers who are charged to keep the toilets in good and hygienic conditions.

As far as the working environment is concerned, the REC Association receives administrative support mainly from the Kigali City Council (KCC) as it has contributed to significantly reduce the problem of lack of public toilets in the City. People residing and coming from out of the city appreciate the fact that they can access cheap and clean toilets. It's important to note here that there still exist some public flush toilets in Kigali but people prefer to use the ecological toilets.



7. Resources

At the beginning of the project, the Association took a loan to initiate the construction of toilets located in the city centre; while the construction of toilets at Nyabugogo main car and bus park was possible due to the loan of 14 million Rwandan francs (about euros 16,700) provided by Kigali City Council. Currently the source of income of the project is mainly the toilet user charges which are RWF (about US\$0.10) per use. This charge is enough for the project to cover the payment of employees, pay back the loan, sustain the infrastructure and make some profit. As an example, at Nyabugogo main car park, the REC Association has 12 toilets with showers, used by 1,000 to 1,500 people every day. This brings in more than US\$25,000 per year. Another potential source of income is selling the dry faeces as fertilizer. Research activities are still on-going to study the extent of the market for this product. In the meantime, the Association is selling this fertilizer to local people. However, big institutions such as the Rwanda Tea Society (SORWATHE) have already expressed their interest in buying this organic fertilizer. We believe the market will be big for this organic fertilizer.

8. Successes

Public toilets are rare in Kigali city and it is a concern for everyone. The initiative that started as a pilot project has been a solution in public places and car parking where everyone needs to go to the toilet after a long period of seating in buses. The intervention was initiated by the REC association and implemented in collaboration with Kigali City Council. The association and Kigali City Council have now agreed to sign a contract for the management of eco-toilets. Thus, the association agreed to manage the eco-toilet after its construction. Full-time employees of REC provide cleansing material (toilet papers, water and soap). They also add drying material, ash mixed with saw dust. Daily users are taught how to keep eco-toilets clean and in good shape by care takers. In addition, care takers have to ensure that the eco-toilets are all the time clean after use to ensure comfort to all users. Bathing facilities are always clean not necessarily because of cleaning but also due to a smaller number of daily users. REC pays a monthly salary to care takers. The money from users is used by REC for daily operation and maintenance of facilities. Cleansing materials are mixed with faeces because they are using soft toilet papers which are biodegradable.

The project contributed a lot to the improvement of environmental sanitation because it was not easy to dispose of human wastes in the concerned areas. There is no more open defecation where the toilets are constructed and used. Each new user gets the information on how to use the toilet properly either from the care takers or from the notices stuck to the toilet walls. Thus, toilets are ever clean and attract users.



The achievements of the Association have attracted attention not only in Kigali City but also countrywide. Public and private institutions are now asking the Association to build these eco toilets in their premises. REC is currently working with the Rwanda Revenue Authority and the Ministry of Immigration and Emigration to build ecological toilets behind its main administrative building in the city of Kigali, as well as at all eight border posts around the country. The Rwanda Revenue Authority will provide funding, and toilet management will be the responsibility of REC. REC has also received a request to build composting latrines for the Rwanda Tea Society (SORWATHE). SORWATHE is purchasing these innovative latrines to enhance access to hygienic toilets for their workers.

With the profits made from the existing facilities, the REC company is planning to extend its activities to other areas which are known to host a lot of people (markets, car parks, etc). Thus, REC is now in the planning to build another set of public composting toilets at the Kimironko Market, one of Kigali's busiest markets. The composting toilets, and the staff to manage them, will replace the existing flush toilets, which are badly managed and whose waste is flushed into the creek running behind the market.



Nyabugogo car and bus parking eco-toilets



Lessons learned

The initiative which started in 2007 is a success because it was a solution to a bad situation in public places.

Nyabugogo, Car Parking Eco-toilets, is a special site because it accommodates a mix of people of all genders from various places of Rwanda and outside Rwanda. The number of users is an average of 600 users per day. This main car and bus parking is located near the wetland which can be a source of ground and surface water pollution. Due to these eco-toilets using ash, saw dust and sun rays to dry out the feces to avoid smell and kill germs, water flowing in Nyabugogo is no longer polluted by human wastes from this public car parking areas.

This case study demonstrates that dry toilets can be a sustainable solution to water resource pollution and a barrier to germs and transmission of water borne diseases. This initiative is a model which can be replicated in other public places in Kigali where people lack clean public toilets and in other poor areas. In addition, it was learned that the eco-toilets can provide a source of fertilizers for agriculture and gardens in Kigali and outside Kigali. The eco-toilets can be a solution to the problem of high prices of chemical fertilizers imported from outside Rwanda.

However, the management of human wastes needs care and experience to ensure that all pathogens are dead and human wastes are safe enough to avoid contamination of potential users of manure or fertilizers from eco-toilets.

From the laboratory tests carried out, it was found out that due to the large number of users the compost heap still has moisture that keep germs alive. This means the compost heap must be treated before it is used. The feces are collected in underneath vaults and composted inside. Due to high number of users, the vaults get full within a short time. Thus, vaults are emptied before time of composting. Emptied feces are packed into sacks and kept in drying place with less humidity. But, due to short time of composting die off of micro-organisms delays and it requires further treatment.

In view of the achievements thus far, REC has made a very good start but there is still a long way to go in order to equip all the public places with these toilets. It is important to note that REC started from scratch, from a situation of insufficient, unsafe and poorly managed toilets. The progress done is commendable but a lot is yet to be done. People are still complaining about insufficient public toilets. Therefore each corner of the city should have such facility. REC cannot finish all this alone, it will definitely need to work in joint venture with other Associations or require some organized public schemes such as TIG (General Interest Works) in order to speed up this process. This will require more involvement from the government. Public institutions like prisons and schools should also be equipped with such sanitation facilities.



Another more technical aspect which has to be considered is to search for ways to use urine. Currently the urine is not collected rather it is infiltrated into soil. This is considered to be the weak point because it not only can lead to ground water pollution, but is also a wasted resource of nutrient for crops.

Another aspect which requires research is the risks linked with handling these wastes. Currently there are no protective measures taken by workers when unloading the vaults or when loading the sacks. They simply use shovels and wheel barrowers without any extra protection of their hands or noses for example.

9. More information

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11. Further reading

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