

Sanitation

Ecological sanitation in Burkina Faso

Solid gold in human excrement

(Translators note: It is tempting to insert a sub-title of “where there’s muck there’s money”, although it is the ultimate meaning of the title, it would not be a faithful translation)

Arzouma Kiéma

Environmentally-friendly fertilizers made from human urine and faeces are available in Burkina Faso. They are the result of research-action conducted by agronomists from the *Centre régional pour l'eau potable et l'assainissement à faible coût* (CREPA) (Regional Centre for Low-cost Potable Water and Sanitation). Known as Birgkoom and Bingkoega, these natural fertilizers are revolutionizing crop production. They produce large cabbages and increase the sugar-content of carrots. Here, we focus on an ecological revolution in the land led by good men!

A lorry empties its load of raw sewage sludge in the open air! The image is striking. Yet, this is a scene witnessed every day in large agglomerations in Africa. How can we overcome this environmental pollution with its serious implications for sanitation? For an African state like Burkina Faso, this is a serious challenge. Yet, both the science and technology for environmentally-friendly sewage disposal exist.

During a mission to Sweden, Cheick Tidiane Tandia, Director General of the *Centre régional pour l'eau potable et l'assainissement à faible coût* (CREPA) stumbled across a document about ecological sanitation. He found the approach interesting. In 2001, with the help of development partners and funding from the European Union, he launched an experiment in the suburbs of Ouagadougou to collect, treat and utilize urine and faeces for crop and cereal production.

Two years after the implementation of this environmental project, the results of the experiment are reassuring for those in favour of recycling human excrement for agricultural production. On the morning of 19 September 2008, we were impressed by the crop yield grown using fertilizers produced from human intestines. Cabbage, gombo and wheat fields fertilised using treated human urine and faeces can be admired in district 19 of the city of Ouagadougou. Frédéric Campaoré is one of the first farmers to have tested these fertilizers. Although he found them somewhat off-putting in the beginning, today he is a convert to these “made in Burkina Faso” fertilizers. For him, these fertilizers have a much greater yield than chemical fertilizers. “If you overdo the urea, the stem of the salad or the corn plant gets scorched”. The natural fertilizers manufactured in Burkina Faso are produced using a scientific process.

Ecological sanitation involves the collection, treatment and reuse of human excrement as agricultural fertilizers. The process results in the manufacture of two types of fertilizer. BingKeoga requires a long process. Ecosan toilets are equipped with two alternating septic tanks. “Following each defecation ash is added to the faeces. Ash reduces the water content of the faeces and keeps the flies away”, says Mireille Kaboré, an agricultural engineer working on the project with the Ecosan team.

“The ash dehydrates the faeces which become clean after about six months. When the first septic tank is full, it is closed for six months; the second tank is used during this time. The treated faeces are used mainly to fertilise cereal plantations”.

“BirgKoom fertilizer is easier to manufacture. Urine is collected in a container. When the container is full, it is hermetically sealed. It is then left for a period ranging from one month to 45 days. This kills off the pathogens in the container. The urine can then be used as a fertilizer”, explains Mireille Kaboré.

Agricultural tests conducted by Dr. Moussa Birgo have yielded positive results. The BingKeoga fertilizer used for the production of cereals such as corn is applied prior to the sowing season and again when the seeds begin to germinate in their planting holes. Agronomists recommend using about 50g of BingKeoga per planting hole. This is equivalent to 5g of NPK. For the sake of convenience, farmers/market gardeners have adopted the small tin of tomato concentrate as their unit of measure.

Ecological sanitation is being met with much enthusiasm among farmers. Farmers on the natural fertilizer testing sites are all smiles when the talk turns to use of human excrement. “They are quite prepared to buy whole containers of clean urine”, explained the former coordinator of the Ecosan EU1 project, Anselme Vodounhessi. The environment benefits the most from ecological sanitation. The products of our intestines enrich the soil. Chemical fertilizers on the other hand, pollute our existence. Made from one litre of urine, one kilogramme of faeces and a few spoonfuls of ash, this recipe is by far the most economical.

The Ecosan project is shaking up old prejudices. It has revealed the agronomic and economic potential of treated urine and excrement. In this way, African states will be able to openly deal with the disposal of domestic urine and faeces. Once they are treated, they become resources and are no longer waste. This simply reaffirms Lavoisier’s rule that “Nothing is lost, nothing is created, everything is transformed”.

Photo caption: [Head] CREPA Director-General Cheick Tidiane Tandia was the driving force behind the Ecosan project in Burkina Faso,

Photo caption: [lorry] Scenes such as this are commonplace in African cities.

[Box text]

Anselme Vodounhessi, coordinator of the Ecosan EU1 project

“The state stands to gain 49 billion FCFA if....”

Anselme Vodounhessi is coordinator for the implementation of the sanitation project in the suburbs of Ouagadougou. According to him, Burkinabè urine is a hidden treasure. If the Burkinabè state were to collect and treat all the urine produced by the population of 14 million-plus souls, the state could earn up to 49 billion FCFA per year.

L’Etalon Enchaîné [newspaper]: What is the Ecosan project?

Anselme Vodounhessi: Ecosan is a new concept linking sanitation to agriculture. It is form of productive sanitation. The project, which is funded by the European Union, is endeavouring to create a complete process for ecological sanitation. We have been promoting this project for the last two years. We have reason to rejoice: concrete results have been achieved. We started by convincing households to install Ecosan facilities. Then we encouraged them to adopt the entire system to enable the collection and storage of clean urine on the treatment sites. The clean urine then had to be collected from these sites and delivered to the farmers/market gardeners. At the same time we had to convince the farmers to use the urine-based products.

What are you doing now that the farmers have agreed to use the Ecosan products?

We are trying to overhaul the system and inject new life into it. We would like the system to keep working once the project has ended. The idea is that those who are responsible for collecting of urine from the households should be able to cover their costs using the revenues they receive from the households. At the moment we are charging households the nominal sum of 300 FCFA per month to clear their septic tanks. At the same time, an association has been established and members are responsible for delivering the treated urine to the farmers. We have to ensure that the revenues they receive from the farmers cover their own costs. It is easy to create employment given that the treatment costs very little. States will no longer have to worry about sanitation problems or about having to build large sewage treatment plants. Our system is a sort of decentralized sewage treatment system.

What benefits do the Ecosan products bring to agriculture?

The benefits to agriculture go well beyond sanitation. To begin with, the contents of latrines have to be collected and treated to avoid negative impacts on the environment. Anyone who has an Ecosan latrine or any town that has Ecosan latrines no longer needs to worry about building sewage sludge treatment plans. This is a problem solved. The treated Ecosan products are used in agriculture and replace chemical fertilizers. Chemical fertilizers are much more expensive. Farmers are unable to afford the costs of these. So Ecosan products are available.... Tests carried out in the market place revealed that the yields from Ecosan products were greater than those from chemical fertilizers. In agricultural terms therefore, there was an improvement in yields. Farmers who have been using the BirgKoom, for example, have said that the soil retains its humidity. They no longer have to wait for the next rainy season before starting a new crop-growing cycle. If we look at this from a macro-economic perspective, a country that chooses to adopt the Ecosan principle no longer needs to spend precious foreign exchange on importing chemical fertilizers.

What economic gains are there to be made by an African state that chooses to adopt the Ecosan approach as part of its sanitation plan for towns and villages?

Several estimates have shown that simply collecting the urine from a single person can lead to gains of 3,500 FCFA. For a group of ten people this goes up to 35,000 FCFA. Calculations have demonstrated that if it were possible to collect the urine from the entire population of Burkina Faso, this would result in earnings equivalent to spending 49 billion FCFA on chemical fertilizers. It would represent earnings each year of 49 billion FCFA if the state managed to collect the urine of all the Burkinabè people. This represents an income of 49 billion...

Photo caption: Anselme Vodounhessi, former coordinator of the Ecosan EU1 project. "The urine of a single person can lead to earnings of 3,500 FCFA".

ECOSAN is a system for treating human excrement that seeks to add value to urine and faeces by transforming them into fertilizers for agricultural production. The separation at source of urine and faeces makes it possible to treat them so that they can be safely reused. The CREPA has been researching, promoting and offering training in the ECOSAN system in 10 countries of West and Central Africa since 2002.

THE ECOSAN CYCLE

LE CIRCUIT ECOSAN

ECOSAN est le système d'assainissement des excréments humains qui vise à valoriser nos urines et nos fèces comme fertilisants dans la production agricole. La séparation à la source des urines et des fèces facilite un traitement nécessaire pour une réutilisation saine. Le CREPA fait la recherche, la promotion et la formation d'ECOSAN dans 10 pays d'Afrique de l'Ouest et du Centre depuis 2002.

