Outstanding Practice in AGROECOLOGY 2019

FACTSHEET

Benin – Using water hyacinth compost to produce healthy food and protect the environment (2013)

IN BRIEF

Implemented by the NGO Centre d'Actions pour l'Environnement et le Développement Durable (ACED), this practice turns the often unsustainable biological control of the highly invasive plant species water hyacinth in Benin (which emits vast amounts of greenhouse gases) into a sustainable collection system with an economic incentive. Smallholder farmers are trained to collect and transform water hyacinth into compost, which is in turn used to enhance crop productivity. Furthermore, smallholders are connected to market opportunities to sell healthy products and enhance their income. Income is also increased through productivity boosts, for instance, producing 120% more amaranth and 162 % more pepper in comparison with the traditional methods. This project has a high potential for replication in African countries where there is the need to fight against the phenomenon, for example, Congo, Kenya, Cameroon, Chad, Togo.

ABOUT THE PRACTICE AT A GLANCE

Organisation: Centre d'Actions pour l'Environnement et le Développement Durable (ACED, an NGO)
Implemented in: Sô-Ava and Abomey-Calavi, Atlantique (Benin)
Year: 2013
Beneficiaries: Smallholders, especially women and youth
Topic(s): Production, Distribution, Waste

PROBLEMS TARGETED / CONTEXT

The practice addresses water pollution, protection of fish stock, reduction of greenhouse gas emissions, soil fertility degradation and quality of food consumed. The practice targets the proliferation of water hyacinths (Eichhornia crassipes), which is considered to be one of the most invasive plant species worldwide, is much present in West Africa

and has negative effects on the biodiversity and climate. In particular, water hyacinths obstruct waterways, destroy wildlife resources, lower dissolved oxygen levels and emit vast amounts of greenhouse gases, especially methane.

In Benin, the municipality of Sô-Ava is located on the shores of Lake Nokoué, close to the large cities. Water hyacinths make already fishing difficult and suffocate fish resources that support a large part of the economy of the region (the lake is considered the most productive lake in West Africa). In addition, their presence complicate lake transport and the flow of agricultural products to cities. In the past, biological control and direct removal of the water hyacinths were implemented by research centres and the local population, but were found to be unsustainable.

In 2012, ACED made a diagnosis of the situation with full participation of stakeholders, including local leaders and grass-root communities. The findings revealed that the collection of water hyacinths would be sustainable if there were a real economic incentive for it. Hence, they consulted the smallholder farmers and co-proposed the development of an innovation which could transform the environmental issue of water hyacinth proliferation into an economic opportunity for improving their livelihoods. In 2013, ACED started the water hyacinth project with 144 gardeners. After two years (in 2015), 70 more gardeners joined the initiative. In addition, from 2016, ACED arranged a selling point at a local market for the gardeners to sell directly to the consumers and promoted their healthy products through a commercial spot on a local radio channel, which increased their sale. As the innovation is well developed now, ACED is developing a scaling-up strategy to reach more than 10,000 smallholders by 2025.

KEY FEATURES OF THE SOLUTION

The main goal of the practice is to promote seed and food sovereignty in Africa and regenerative livelihoods, to increase seed diversity and protect wild relatives and thus biodiversity in general, and to build resilience of communities and ecosystems in the face of climate change. Its objectives are to revive seed biodiversity through reviving knowledge by means of community dialogue, memory using eco-calendars, complimentary roles and responsibility and building confidence through knowledge exchange.

The practice focuses on the social and ecological regeneration of seeds. It involves recuperation of lost seeds and related knowledge and practices, seed banks and household seed storage systems, community ecological governance, seed festivals, ceremonies and practice of rituals, community research groups, seed maps and seasonal calendars, exchange visits, community dialogues, seed exchanges and sharing, intercropping, use of natural fertilizers and composting, integrated pest management, seed selection, saving and multiplication, women's knowledge and establishment of communities of practice on seeds.

The practice is implemented throughout Africa by ABN and the Gaia Foundation in collaboration with local partners (e.g. Regional Advisory Information and Network Systems (RAINS) in Ghana , Institute for Culture and Ecology (ICE) in Kenya and National Association of Professional Environmentalists (NAPE) in Uganda). Partners and communities are advocating actively to policymakers to promote understanding of community seeds

and knowledge systems e.g. ICE (Kenya) with Greenpeace Africa lobbying for agro-ecology support; ISD (Ethiopia) campaigns continually and annually organises Green Action Week to raise awareness of ecological principles; and RAINS (Ghana) lobbied against passage of Plant Breeders Bill (2015) and established a good relationship with Department of Agriculture and Nutrition.

INNOVATIVE ASPECTS

• Transforming an environmental problem into an economic and sustainable opportunity for smallholders.
• As the compost of water hyacinth is freely obtained, the smallholders reduce their production costs.
• Links smallholders directly to consumers thereby reducing the circuit of sale, which enhances the income obtained from the sale of produce.
• Encourages more production of healthy produce.
• Builds and reinforces trust among actors within project, enabling more and improved livelihoods by farmers and expanding the autonomy of women and youths through these activities.

FACTS & FIGURES

• 214 gardeners living in two villages in the municipality of Sô-Ava are trained and use the innovation (many are women and young people).
• The new technique for collecting water hyacinth resulted in a 39% increase in the productivity of collection.
• By 2016, more than 3,200 tons water hyacinths transformed into 1,880 tons of compost. According to the nomination by 2017, even more than 5,400 tons of water hyacinths were collected and more than 3,200 tons of compost were produced.
• The indirect beneficiaries are the whole population of the municipalities of Sô-Ava and Abomey-Calavi (700,000 inhabitants), who are the consumers of the healthy vegetables products obtained using water hyacinth compost (plus transport and fisher folks benefitting from a lake with less invasive plants, etc.)
• 2 community gardens in the towns of Porto-Novo and Aborney-Calavi have created 40 temporary jobs for vulnerable local populations.

OUTCOME, IMPACT & EFFECTIVENESS

• Achieved 20% reduction of water hyacinth by 2016.
• The water hyacinth compost improved the productivity by 120% for amaranth, 42% for tomato and 162 % for pepper in comparison with the traditional method, which, in turn, increases the production and income.
• The selling price of vegetables improved from XOF 100-400 (€0.15-0.60) to 110-450 (€0.17-0.68) for tomato and from 200-400 (€0.30-0.60) to 225-450 (€0.34-0.68) for pepper, which increased the income of gardeners. There was an increase in average selling price of produce of 19 %. Quality of produce also increased.
• A survey undertaken at the Akassato market showed that the vast majority (approx.

90%) would be prepared to frequent the market stall of Sô-Ava products, even if they were more expensive (reflecting a higher quality).

OUTLOOK, TRANSFERABILITY, SCALABILITY & COST-EFFICIENCY

From 2013 to 2017, the cost of implementation was EUR 123,757. The practice was funded by the Fondation de France, the Comité Francais pour la Solidarité Internationale, the Presbyterian Hunger Program, the French Global Environment Facility and the Fondation Veolia. The funds progressively allowed to set up innovations and were used to provide farmers training and material (boats, motor pumps, wheelbarrows, watering cans, forks, boots, etc.). Currently ACED plans a scaling-up strategy to reach more than 10,000 smallholders by 2025.
ACED has already contacted several originations, which wish to replicate the initiative in Congo, Kenya, Cameroon, Chad, Togo, and Burkina Faso. For example, Lake Victoria in East Africa and Lake Chad could well benefit from its replication. This project has high potential for replication in countries where there is the need to fight against the phenomenon.
To scale up the practice, three major issues have to be addressed: a certification that recognizes produce as agroecological/organic, additional capacity building and knowledge of farmers, and human and financial resources. Technology could be useful to make the collection of water hyacinth more effectively. A small collection ship could be very useful.

INTERVIEWEE FEEDBACK

Number of points: 20.5 out of 23
Summary: The interviewee gave a lot of information into this innovation which turns an environmental menace into an ecologically and economically beneficial opportunity. The practice scored well across the board, and lost few points.

1 (Sustainable use of resources) – 3.5/6 – Combats proliferation of water hyacinths, which is not a good natural resource phenomenon. Promotes useful transformation of this for biomass and biogas. Reduces external inputs and hence financially beneficial to smallholders. Recycling is at the core of operations, 75% water hyacinths and then some production waste and animal manure. Promotes healthier soils. Also promote use of biopesticides, for example a liquid produced by lupoli leaves and sprayed on plants as a pest repellent. No co-design of pest control measures at landscape level (0,5). Biodiversity was never a key objective (0). Synergies in food systems and circular economy also present. Received external funding and still at R&D stage (0), but once introduced, farmers continue alone.

2 (Equity and eradication of poverty) - 4/4 – Combats poverty through tackling of negative effects on livelihoods of water hyacinth, contributes to community. Women are involved, especially in the selling part. Youth attracted by collecting the water hyacinth, also jobs created. Only small producers and indigenous people (average plot less than 0.5 ha). Local solution and markets enhanced.

3 (Precautionary approach to human health, natural resources and ecosystems) - 2 / 2 – Human and environmental health supported by removal of water hyacinth, an invasive species. Problem raised by population itself –thus supporting them to tackle the real risk to their livelihoods.

4 (Public participation and access to information) - 3/3 – Participatory project from the start. Co-creation of project with farmer and collective identification of problem and tasks. Access to information given to all and published a technical guide. Provide training to farmers.

5 (Governance and human security) 3/3 – Existing mechanisms to ensure internal and external transparency. External audit also ensures guidelines around bribery and corruption are followed. The people are the managers of the water hyacinth compost.

6 (Integration, interrelationship- human rights, social, economic and environmental objectives) - 3/3 – Environmental and social benefits are enjoyed by all parties. Removal of water hyacinth is better for biodiversity (fish, plankton, birds) and for fishers. Compost is beneficial for production, especially soil health. Crops grown enable healthy diets.

7 (Common but differentiated obligations) - 2/2 – Appropriate for the region. No vulnerable groups left behind as everyone benefits.

CONTACT

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LINKS AND FURTHER READING

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