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COMMUNITY-BASED CHEMICALS AND WASTE MANAGEMENT

EXPERIENCES FROM THE GEF SMALL GRANTS PROGRAMME

Authors: Sulan Chen* and Ingerid Huus-Hansen

Case Contributors
CASE 1: Hovhannes Ghazaryan and Svetlana Harutyunyan
CASE 2: David Bynoe
CASE 3: Singay Dorji, Tshering Phuntsho, Tara Monger
CASE 4: Yi Liu
CASE 5: George Ortsin
CASE 6: Katerina Yushenko and Olga Romanova
CASE 7: Zlatko Samardziev and Melita Ivanova
CASE 8: Shin Shin Lee and Sook-mei Lai
CASE 9: Pamela Bapoo-Dundoo and Samanta Hardas
CASE 10: Gopal Raj Sherchan and Vivek Dhar Sharma

Editor: Tehmina Akhtar

Publication Coordinator: Ana Maria Currea

Printing Coordinator: Gentiana Xhavara

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Small Grants Programme
Sustainable Development Cluster
Bureau for Policy and Programme Support
United Nations Development Programme
304 East 45th Street, 9th Floor, New York, NY 10017
www.sgp.undp.org

* Lead and corresponding author. Email: sulan.chen@undp.org.

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PHOTO: SGP-MALAYSIA – CONSUMER ASSOCIATION OF PENANG

Foreword

The world has witnessed a drastic increase in chemicals production and use: the industry has grown from US$171 billion in 1970 to over US$4.1 trillion today. While chemicals have played a key role in agriculture, medicines, textiles and almost every aspect of modern industries, they also pose potentially great threats to healthy ecosystem and human health. Illicit and improper use of hazardous chemicals is still on-going, and lack of awareness in handling pesticides and herbicides is an issue for many communities. Improper management of municipal and solid waste, incineration and uncontrolled dumping continues to release harmful substances into the environment with negative consequences for both people and the ecosystems they rely on. Millions of tonnes of plastics enter the ocean each year, threatening marine ecosystem services and human health. Chemicals and waste constitute a major threat to human health particularly in low to middle income countries, mainly due to the lack of waste management infrastructure and awareness.

Recognizing the global challenges in chemicals and waste management, the world leaders adopted multilateral environmental agreements, including the Stockholm Convention on Persistent Organic Pollutants and the Minamata Convention on Mercury, both of which designated the Global Environment Facility (GEF) as the financial mechanism for their implementation. As a flagship corporate program of the GEF, the GEF Small Grants Programme (SGP), implemented by the United Nations Development Programme (UNDP), has been piloting innovative community-based projects to chemicals and waste management in line with the GEF Strategic Programming. As of today, the SGP has supported a total of 565 chemical and waste management projects in 103 countries. The GEF grant provided towards these projects totals $16 million, which leveraged more than $18 million in co-financing.

The ten SGP projects that are highlighted in this publication showcase successful implementation of innovative community-based solutions in addressing chemicals and waste problems. Communities empowered with knowledge, funding and technical support can identify and implement effective local activities to avoid, reduce and phase out the use of harmful substances and manage the resource flow to waste in a circular system.

We recognize the need to effectively communicate and upscale these successful local actions to ensure larger impacts. We hope this publication will inspire further innovative practices at the community level, and leverage political and financial support to scale up and promote sound chemicals and waste management for improved global environment and local livelihoods.

The UN Sustainable Development Goals have set a clear goal for the future, including *"by 2020, achieve the environmentally sound management of chemicals and all wastes throughout their life cycle."* The scope and complexity of the problems we are facing require efforts from all sectors and key stakeholders. Successful chemicals and waste management requires partnerships between governments, international organizations, civil society organizations, research institutes and academia, and the private sector. Only through effective inclusive partnerships that build upon a shared vision that place people and planet at the center do have we a chance to create a toxic free sustainable future.

Adriana Dinu
Executive Coordinator
UNDP Global Environmental Finance Unit
Sustainable Development Cluster
Bureau for Policy and Programme Support
UNDP

Gustavo Fonseca
Director of Programs
Global Environment Facility

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The Global Environment Facility (GEF), established on the eve of the 1992 Rio Earth Summit, is a catalyst for action on the environment — and much more. Through its strategic investments, the GEF works with partners to tackle the planet's biggest environmental issues. Our funding also helps reduce poverty, strengthen governance and achieve greater equality between women and men. As such, we occupy a unique space in the global partnership for a more sustainable planet.

The GEF is…

- **A UNIQUE PARTNERSHIP** of 18 agencies — including United Nations agencies, multilateral development banks, national entities and international NGOs — working with 183 countries to address the world's most challenging environmental issues. The GEF has a large network of civil society organizations, works closely with the private sector around the world, and receives continuous inputs from an independent evaluation office and a world-class scientific panel.
- **A FINANCIAL MECHANISM** for 5 major international environmental conventions: the Minamata Convention on Mercury, the Stockholm Convention on Persistent Organic Pollutants (POPs), the United Nations Convention on Biological Diversity (UNCBD), the United Nations Convention to Combat Desertification (UNCCD) and the United Nations Framework Convention on Climate Change (UNFCCC).
- **AN INNOVATOR AND CATALYST** that supports multi-stakeholder alliances to preserve threatened ecosystems on land and in the oceans, build greener cities, boost food security and promote clean energy for a more prosperous, climate-resilient world; leveraging $5.2 in additional financing for every $1 invested.

The Small Grants Programme (SGP) is a corporate programme of the Global Environment Facility (GEF) implemented by the United Nations Development Programme (UNDP) since 1992. SGP grantmaking in over 125 countries promotes community-based innovation, capacity development, and empowerment through sustainable development projects of local civil society organizations with special consideration for indigenous peoples, women, and youth. SGP has supported over 20,000 community-based projects in biodiversity conservation, climate change mitigation and adaptation, prevention of land degradation, protection of international waters, and reduction of the impact of chemicals, while generating sustainable livelihoods.

Introduction

BACKGROUND

The proliferation of harmful chemicals is a growing concern for human health and the global environment. However, in today's world, chemicals are an integral part of everyday life and there is hardly any industry or economic sector where chemicals do not play an important role.

The world has witnessed a drastic increase in chemicals production and use, from an output of US$171 billion in 1970 to over US$4.1 trillion today (UNEP, 2012). The OECD's Environmental Outlook to 2050 notes that annual global chemical sales doubled over the period between 2000 and 2009. Moreover, this trend shows continued growth. Studies forecast that global chemical sales will grow at about 3 percent per year till 2050 (UNEP, 2012). The sound management of chemicals and wastes in the global economy is a key challenge of our time.

Many chemicals, such as persistent organic pollutants (POPs) and mercury, can travel over long distances through air, migratory species and water currents. POPs pesticides are chemical compounds that contain carbon, hydrogen, and chlorine. POPs share common characteristics of persistence, bioaccumulation and the ability to travel long distances far from their sources of origin which make them particularly hazardous to humans and wildlife. POPs concentrate in the human body and in eco-systems and can cause serious long-term health effects. They can most severely impact those who work or live where POPs are used or produced and who are directly exposed through inhalation, dermal contact and ingestion. Due to their ability to travel long distances, POPs can equally cause harm to people or ecosystems which do not directly use or come in contact with POPs. High concentration of POPs has been found in areas such as the Arctic, where these chemicals are not used. Another threat is their persistence, as POPs break down slowly and remain in the environment and within living organisms long after original use and exposure. Some POPs can remain in the body for more than 50 years (GEF, 2017).

Exposure to POPs can lead to serious harmful health effects including certain cancers, birth defects, dysfunctional immune and reproductive systems, greater susceptibility to disease and damages to the central and peripheral nervous systems (Stockholm Convention, 2017). The Global Environmental Outlook (UNEP, 2012) identified that the majority of impacts from unsafe chemical use and unsound waste disposal, including death, impairment of health and ecosystem degradation, occur in situations of poverty. Increased risks of exposure to toxic and hazardous chemicals and wastes predominantly affect the poor, who routinely face such risks because of their occupation, poor living standards and lack of knowledge about the detrimental impacts of exposure to these chemicals and wastes. Many of those living in poverty enter the informal sector of the economy which is likely to be less regulated. Children are particularly susceptible to the negative health impacts of chemicals due to their rapid growth and development and greater exposure relative to body weight

PHOTO: SGP GEORGIA

PHOTO: SGP-MALAYSIA – CONSUMER ASSOCIATION OF PENANG

(Sheffield and Landrigan, 2011). In addition to known hazards from conventional sectors new kinds of toxic hazards are also emerging from electronic and electrical waste (e-waste) disposal, sorting and re-use that are unregulated.

GLOBAL INSTITUTIONAL AND POLICY FRAMEWORKS

Global conventions and frameworks related to chemicals management recognize the importance of working with poor and vulnerable communities. The Stockholm Convention on Persistent Organic Pollutants was adopted in May 2001 and entered into force in May 2004. This convention is a global treaty to protect human health and the environment from POPs chemicals. It designates the Global Environment Facility (GEF) as the principal entity entrusted with the operations of the financial mechanism of the Convention.

The Strategic Approach to International Chemicals Management (SAICM) is a policy framework to foster the sound management of chemicals. It was adopted by the International Conference on Chemicals Management (ICCM) on 6 February 2006 in Dubai, United Arab Emirates. The overall objective of the Strategic Approach is to achieve the sound management of chemicals throughout their life-cycle so that, by 2020, chemicals are used and produced in ways that lead to the minimization of significant adverse effects on human health and the environment.

PHOTO: SGP MAURITUS

The Minamata Convention on Mercury is a global treaty agreed upon in 2013 to protect human health and the environment from the adverse effects of mercury. The objective of this Convention is to protect the human health and the environment from anthropogenic emissions and releases of mercury and mercury compounds. This convention requires parties to take measures to reduce the emission and release of mercury and manage mercury waste in an environmentally sound manner. In January 2013, upon the adoption of the Minamata Convention for Mercury, the GEF was designated as the financial mechanism for its implementation.

During its 6th replenishment period (July 2014 to June 2018; GEF-6), GEF continues to play a catalytic role in leveraging budgetary resources to support elimination and reduction of harmful chemicals and waste. The GEF has two key strategic objectives focusing on chemicals and waste: 1) to develop the enabling conditions, tools and environment for the sound management of harmful chemicals and wastes; 2) to reduce the prevalence of harmful chemicals and waste, and support the implementation of clean alternative technologies/substances.

In 2015, member countries of the United Nations adopted the Sustainable Development Goals (SDGs) to be achieved by 2030. Sustainable chemicals and waste management is an issue that is relevant to the achievement of many of the 17 Goals. Particularly, under Goal 12 "Sustainable Consumption and Production Patterns," target 12.4 stipulates the achievement by 2030 of "environmentally sound management of chemicals and all wastes throughout their life cycle, in accordance with agreed international frameworks, and significantly reduce their release to air, water and soil in order to minimize their adverse impacts on human health and the environment." (United Nations, 2015). Similarly Goal 3, "Good Health and Well-being", aims to achieve a reduction in the number of deaths resulting from hazardous chemicals and waste in air, water, and soil (United Nations, 2015). Goal 11, "Sustainable Cities and Communities", also aims to reduce "the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management" (United Nations, 2015).

THE GEF SMALL GRANTS PROGRAMME: COMMUNITY-BASED CHEMICALS AND WASTE MANAGEMENT FOR SUSTAINABLE DEVELOPMENT

The GEF Small Grants Programme (SGP) is the special window of the GEF providing financial and technical support to communities and civil society organizations for addressing global environmental challenges, while also promoting poverty reduction and sustainable development. In the chemicals and waste focal area, SGP focuses its support to communities at the forefront of chemical threats either as users or consumers, including women and indigenous peoples. Such communities are particularly vulnerable as they may lack awareness and access to information about harmful chemicals, and may not participate in all aspects of decision-making related to the sound management of chemicals. SGP supported the work on POPs after it was launched in 1992 under other GEF focal areas, and added a chemicals and waste focal area in 2002, following the designation of the GEF as the financial mechanism for the Stockholm Convention. As of April 2017, SGP has supported 565 projects with an investment of more than $16 million in GEF grant funding, leveraging more than $18 million in co-financing (Table 1) from multiple sources. SGP's chemicals and waste portfolio has focused on:

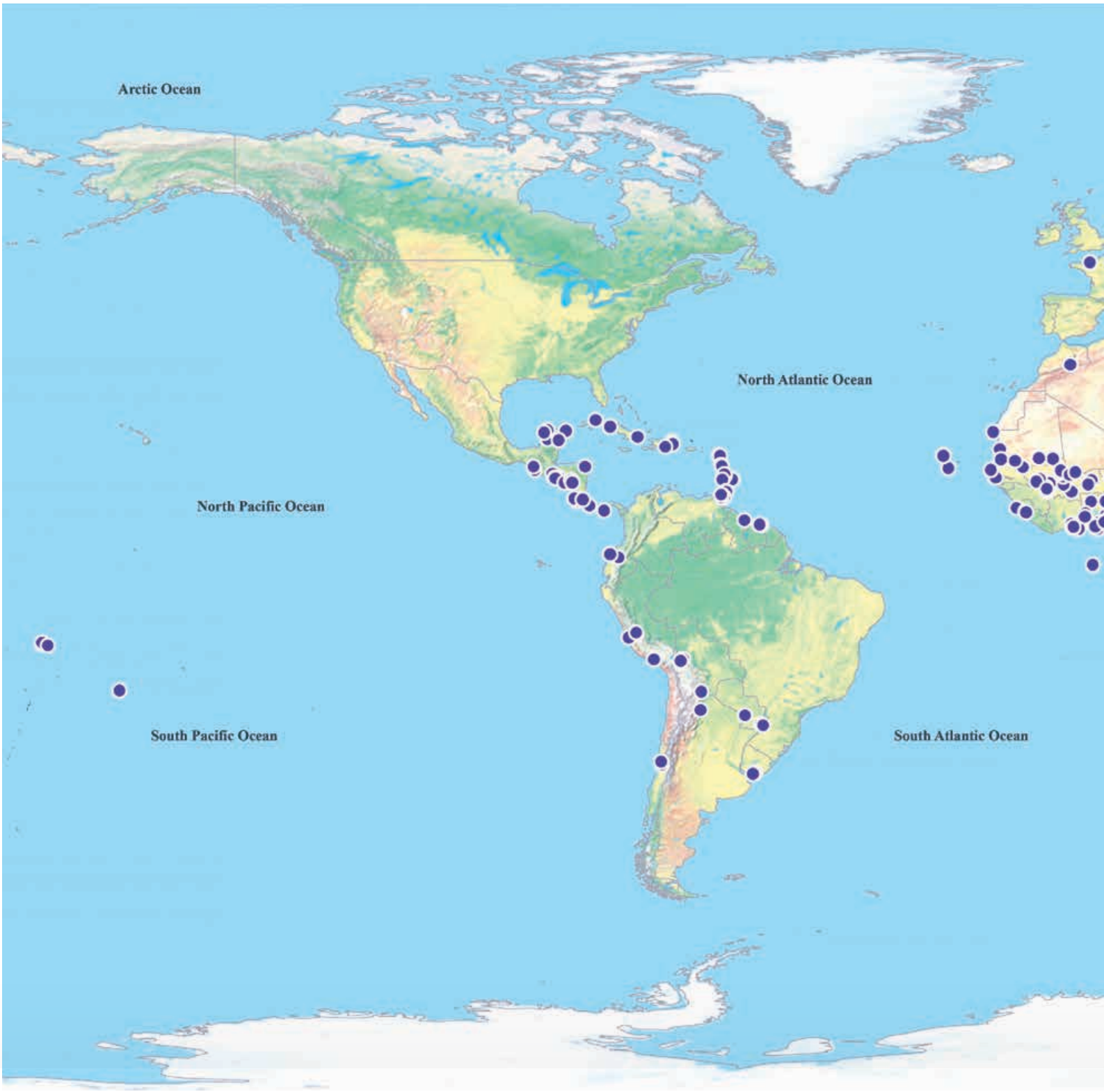
- solid waste management to avoid open burning of waste;
- pesticide management in agriculture and organic farming;
- reduction of chemicals usage and contamination (such as PCB) in small-scale businesses;
- capacity development, awareness raising and knowledge sharing.

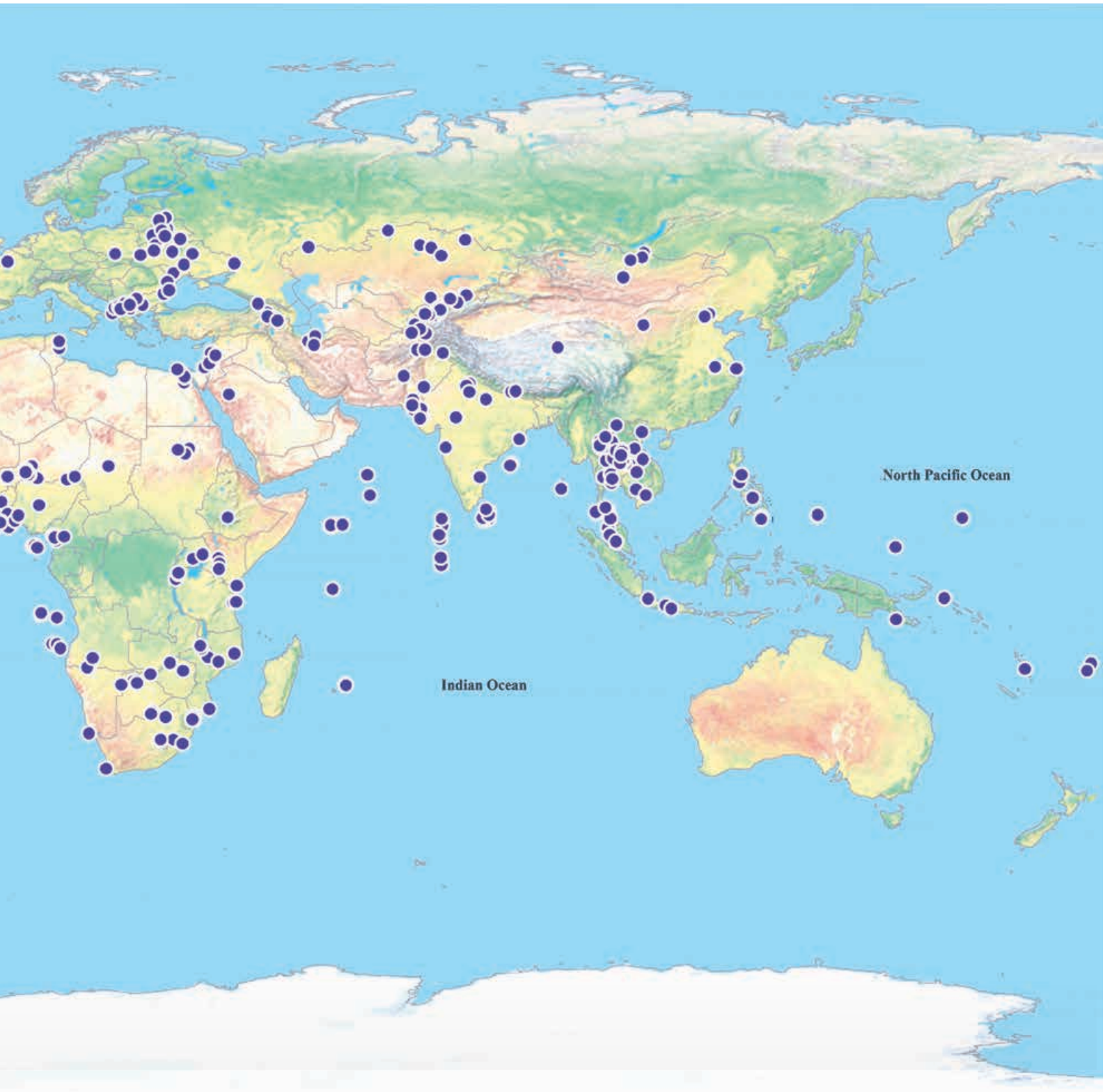
The global distribution of SGP's community based projects in chemicals and waste can be appreciated in Map 1. This publication includes ten cases on community-based chemicals and waste management, which provide a snapshot of SGP's experiences in working with communities on chemicals and waste management around the world and the results and lessons generated.

TABLE 1. CHEMICALS AND WASTE PORTFOLIO BY REGION

REGION	NUMBER OF PROJECTS	GRANT AMOUNT (US$)	CO-FINANCING IN CASH (US$)	CO-FINANCING IN KIND (US$)
AFRICA	185	5 880 509	2 521 186	3 247 894
ARAB STATES	27	901 615	404 851	447 834
ASIA AND THE PACIFIC	145	3 727 897	2 626 033	2 050 780
EUROPE AND THE CIS	90	2 235 888	1 431 784	918 925
LATIN AMERICA AND THE CARIBBEAN	118	3 259 632	1 373 017	3 374 576

MAP 1. **GEF SMALL GRANTS PROGRAMME**
CHEMICALS AND WASTE PORTFOLIO IN THE WORLD





Data Source: GEF SGP Projects Database, ESRI 2010 World Data, Natural Earth I with Shaded Relief, Water, and Drainages

CASE 1: ARMENIA

Caring for nature: adopting a plastics free lifestyle in Kapan

GRANTEE
Urban Foundation for Sustainable Development

COUNTRY
Armenia

LOCATION
Kapan, Syunik region

SGP CONTRIBUTION
US$49,658

IN-CASH CO-FINANCING
US$24,018

IN-KIND CO-FINANCING
US$7,384

START DATE
July2013

END DATE
June2014

PHOTO: SGP ARMENIA

PROJECT CONTEXT

The management of plastic waste is an unsolved problem in Armenia as there is no state regulation for the sorting and recycling of waste. This problem is compounded by the fragmented administrative division system of Armenia, despite the small size of the country. There are over 900 communities, more than 90 percent of which have a population of less than 5,000 people. The budget revenue generated locally is often too small to support municipal waste management services. As a consequence, municipal waste management is not provided in the majority of Armenian communities. Only ten towns in Armenia have established infrastructure for waste separation. There are no facilities for recycling plastic waste into secondary raw materials and the waste frequently ends up in substandard dumpsites. This project supported by SGP and implemented by the Urban Foundation for Sustainable Development (UFSD) aimed to reduce plastic waste in Kapan by improving municipal waste management and enhancement of public awareness and education. This project aimed at addressing the waste problem in a more effective way through better organization and institutional assistance.

PROJECT IMPLEMENTATION

Plastics make up about 40 percent of the volume of general waste and create immense environmental, health and economic problems. Plastic is not separated, recycled or processed as the recycling process is often not lucrative. Additionally, the plastic waste that is dumped in landfills will start to smolder and emit POPs into the environment. The project worked to improve waste management practices by increasing public awareness through education, decreasing the amount of pollution in nature, and enhancing Kapan municipality's technical capacity to collect, sort, and sell separated PET waste.

A memorandum of understanding was signed between Kapan municipality and local recycling companies regarding the disposal of plastic waste. To reduce reliance on plastics a production team was established to make reusable shopping bags to replace plastic bags. Training sessions, seminars, round-table discussions, distribution of reusable shopping bags among local shops and supermarkets, regular coverage of the project, and public service advertisements on local television stations, special school events, leaflets and posters raised awareness among stakeholders and beneficiaries in the community. Additionally, the Kapan municipality waste management service providers trained teachers who dedicated time during their regular classes to encourage school children to adopt a plastic free lifestyle.

PHOTO: SGP ARMENIA

PHOTO: SGP ARMENIA

RESULTS AND SCALING UP

The project established sorting of plastic bottles instead of throwing them in with general waste or disposing of them in nature. Ninety bins for plastic waste and forty-two bins for general waste were installed in Kapan, twelve spaces for placing waste bins were renovated, and a storage facility for collecting and pressing plastic bottles was renovated and equipped. The reusable shopping bags production team, comprised of 30 low income women who had sewing machines and the necessary skill to create reusable bags, proceeded with great enthusiasm and produced quality work. The reusable shopping bags were distributed among local shops and supermarkets, to raise awareness and enhance plastic free behavior patterns. While such efforts alone would not solve the problem of excessive harm made by plastic bags to the environment, the project helped promote the culture of reusable shopping bags in the community and greater awareness. The model is not complicated and replication should be feasible in most situations. Further success can be achieved with proper legislation in place and when the cycle of sorting, collecting, and recycling is complete.

The project has been scaled up. UFSD has started a new initiative funded by the European Union (Clean Alliance: Accessible Services for Goris and Sarnakunk Community Clusters). Within the framework of this project the Goris and Sarnakunk communities will establish storage for plastic waste, and obtain machines to press and bale plastic bottles for selling to recyclers. Eight Armenian communities (Gorhayk, Tseghuk, Sarnakunk, Spandarian, Karahunj, Verishen, Akner and Goris) will also install special bins for plastic collection. UFSD is also involved in an upcoming project – "Turning Environmental Challenges into Opportunities: Introducing Construction Materials from Plastic Waste" with the objective of creating opportunities in Syunik and Vayots Dzor regions by introducing an innovative and affordable technology for production of construction materials from plastic waste.

EXPERIENCES AND LESSONS LEARNT

The project demonstrated that close cooperation and mutual support between a local government and an NGO can yield results. The project also took into account the community's perceptions and applied confidence building measures to ensure successful implementation. The Kapan community initiated separation of the plastic waste from the general waste, while the city obtained the plastic collected from waste bins and provided a storage facility for pressing and storing plastic bottles. A study tour conducted to recycling companies in Yerevan resulted in signing of agreements with them, and became a start-up for further cooperation for collection and sale of PET waste resulting in further income for the community. Reusable shopping bags produced through a simple public-private partnership employing low-income women raised awareness about waste reduction and promoted a plastic free culture.

The project also found that better exposure and successful awareness raising can be achieved by involving the media and getting television coverage to reach more of the local community residents. Additionally, SGP's support to the project managers on technical and administrative issues, consultancy, and regular monitoring of the implementation process facilitated ongoing activities in keeping with the context and helped achieve consistent progress.

In the course of implementation, the project faced a setback due to limited staffing and inclement weather, but this was solved through a no-cost extension granted for three months to allow the project to complete its planned activities. Another challenge faced by the project was the lack of supportive legislation and regulation. To address this UFSD developed legal recommendations about reduction of polyethylene shopping bags in the Republic of Armenia and presented it for consideration to the National Assembly Standing Committee on Agriculture and Environment and the Ministry of Nature Protection. While these have been positive steps, more significant changes will be required for the waste management legislation to address the problem comprehensively and make businesses reduce their plastic consumption.

PHOTO: SGP ARMENIA

CASE 2: BARBADOS

Certification: supporting organic farming

PROJECT CONTEXT

On the island of Barbados there is an organic movement to reduce the use of agrochemicals for food production (synthetic fertilizers, pesticides and growth hormones) which impact negatively on the groundwater supply and nearshore marine environment. Customer surveys have shown that there is a high demand for organic produce among the tourists and local population in Barbados. However, the production of organic produce falls well below the demand for it. Organic food production makes up less than 10 percent of national food production. In 2004, the country adopted organic standards through the Barbados National Standards Institute (BNSI), based on the CODEX Alimentarius guidelines for organic farming, but had not developed the system for delivery of inspections and certification that would facilitate the enforcement of these standards. Consequently the major organic agricultural association in Barbados, the Organic Growers and Consumers Association (OGCA) had no tangible means to verify the practices of their growers as being of a standard that merits recognition. This challenge had been compounded by the lack of a credible, sufficiently independent entity responsible for conducting inspections and awarding organic certification to existing organic growers and farmers.

In 2014 OGCA received support from SGP to develop and implement a national organic inspection and certification system. The project primarily targeted members of the association by building their capacity to facilitate the certification process and to meet the requirements for organic certification.

GRANTEE
Organic Growers and Consumers Association

COUNTRY
Barbados

LOCATION
Barbados

SGP CONTRIBUTION
US$45,785

IN-KIND CO-FINANCING
US$29,635

START DATE
June 2014

END DATE
November 2016

PHOTO: SGP BARBADOS

PHOTO: SGP BARBADOS

PROJECT IMPLEMENTATION

OGCA sought to facilitate training of inspectors while educating farmers and developing monitoring and reporting systems for the certification process. OGCA collaborated with the Jamaica Organic Association Movement (JOAM) and the International Organic Inspectors Association (IOIA) in this effort. Key activities implemented by OGCA through this project included training and certification.

In particular, ten people were recruited and trained as inspectors to serve as trainers of future trainees. An additional 22 people were trained in data collection and farm record keeping using information technology and received assistance in project management. Among the project's outputs, a short educational tutorial was produced, along with two organic and environmental training modules in computer readable format. The project resulted in the development of a centralized electronic farm monitoring system. Organic farm inspection reports were completed and submitted for ratification by the authorising agency. Overall public awareness was raised about the Codex guidelines and the OGCA certification logo was disseminated and promoted widely.

RESULTS AND SCALING UP

The project successfully trained members of the OGCA in sound organic farm management practices to avoid the use of synthetic fertilizers and pesticides in farming operations. Farmers were trained to document their day to day farming activities using android/tablet technology. Thirteen persons, ten of whom are local residents, were trained and are now part of a pool of certified organic inspectors recognized through IOIA to verify organic practices for either private or government certification bodies. Staff of the competent authorities, including the BNSI of the Ministry of Commerce and the Ministry of Agriculture have also benefited from training to assist in the authorization of organic farm certification.

The organic inspection training has reaped co-benefits for inspectors, organic producers and consumers. It has created new career opportunities and avenues for complementary livelihoods and income generation. Inspectors have the opportunity to either work with certification bodies or as consultants to organic farmers to ensure compliance of the standards for achieving organic certification status. In addition, an organic certification status will justify a premium price for organic produce which will be an incentive to some farmers, while simultaneously satisfying the confidence level of consumers in the purchase of genuine organically produced crops. The widespread adoption of organic farming will contribute to the avoidance and reduction of agrochemicals.

A multi-disciplinary, supportive and experienced Secretariat provides strategic guidance while facilitating the mobilization of financial and non-financial resources. The inclusion of capacity building initiatives can increase confidence and also willingness to better participate in project initiatives. The project demonstrates that a local non-governmental organization can advocate and influence the policy implementation of Codex Alimentarius standards and guidelines at the national, institutional, and community level through strategic partnerships, stakeholder engagement and education. By establishing a multi-disciplinary steering committee, OGCA created a participatory and inclusive

environment for stakeholders involved in organic food production. There is now full support from government, technical and financial stakeholders to operationalise the organic certification process. Training of government officers in organic farm inspection, further enhanced the government's commitment. A continuation of the strong partnership established between OGCA and the Ministry of Agriculture will be required to strengthen the legislation and increase resource mobilization efforts. In recognition of its advocacy efforts, OGCA was identified as a key stakeholder to contribute to the revision of the National Physical Development Plan of Barbados.

EXPERIENCES AND LESSONS LEARNED

The cost of organic farm inspection has traditionally been a major impediment for farmers in their quest to obtain farm certification. The cadre of local organic inspectors created by the project facilitates sustainability by reducing the need to acquire the services of external inspectors that would normally be sourced from Europe or United States of America at a much higher cost. The relationships with key authorities, including BNSI and the Ministry of Agriculture, have been enhanced and subsequent ownership of these initiatives by these entities has enhanced the sustainability of this initiative by providing a conduit for the implementation of the certification system beyond the lifetime of the project. The project has been widely publicized and consumers are becoming more aware of the standards for organic food production. The establishment of an organic brand has allowed for organic product differentiation within the market and is expected to lead to increased demand for organic produce.

The project learned that peer to peer knowledge is very important but must be guided by the project's objectives and adapted or contextualised based on the environment in which it is being applied. There have been a few barriers encountered to successful knowledge exchange rooted in the belief that someone else will reap the benefits that the initiator was unable to obtain. However efforts to address these have included increasing transparency, giving credit to individuals involved in the process, ensuring a participatory strategy while creating a model organization with benefit sharing for all members. The creation of online communities for committee members and OGCA members have facilitated knowledge sharing and also kept up the momentum by enabling access to virtual and remote knowledge exchange possibilities.

PHOTO: SGP BARBADOS

CASE 3: BHUTAN

Waste paper recycling for youth employment

GRANTEE
Bhutan Youth Development Fund

COUNTRY
Bhutan

LOCATION
Bjemina, Thimphu, Bhutan

SGP CONTRIBUTION
US$47,050

IN-CASH CO-FINANCING
US$106,000

IN-KIND CO-FINANCING
US$60,320

START DATE
August 2013

END DATE
March 2015

PHOTO: SGP BHUTAN

PROJECT CONTEXT

The Kingdom of Bhutan is experiencing a high rate of urban population growth and rural to urban internal migration. Waste and pollution are major environmental concerns in Bhutan, caused in part by rapid urbanization, inadequate infrastructure, low public awareness and education on waste management issues, and rapid economic development activities such as construction. Increased waste generation threatens human health and Bhutan's pristine natural environment. Thimphu, the capital and largest city in Bhutan, produces some 50 tonnes of waste daily, which far exceeds the capacity of Thimphu's waste management system.

The country also faces the challenge of providing employment opportunities to youth. In 2015, the unemployment rate among youth was at a record 10.7 percent, nearly four times the average unemployment rate. The Bhutan Youth Development Fund (BYDF) established the "Eco-Friendly Initiative" focusing on waste management and recycling efforts in 2013. An effort to employ recovering drug and substance users facing difficulty in finding jobs after having undergone rehabilitation, due to social discrimination or lack of marketable skills. BYDF came up with the Eco-Friendly Initiative as an innovative means to address the unemployment faced by this segment of the young population while also tackling waste and environmental challenges in Bhutan. BYDF initiated the project with support from SGP and co-financing from the Goodwill Community Foundation.

PROJECT IMPLEMENTATION

The Eco-Friendly Initiative promoted waste paper collection and management in Thimphu in collaboration with Greener Way, Thimphu's main waste management firm. The project recycled waste paper to produce egg trays using specialized moulding machinery at the recycling facility. The egg trays were then packaged for sale and sold. The initiative promoted the sale of locally made egg trays as a means of reducing carbon dioxide emissions by reducing reliance on imported carbon intense trays transported from other countries. No chemicals were used in the production of egg trays while paper waste was re-used and reduced. The youth employed to work at the waste management and egg tray production facility were hired through the Nazhoen Pelri Drug Rehabilitation Centre creating a gainful employment opportunity for them upon completion of their treatment. The egg trays produced by the Eco-Friendly Initiative were purchased whole sale by a local retailer, Karma One Stop Shop which sold them directly to other shops and local farmers.


PHOTO: SGP BHUTAN


PHOTO: SGP BHUTAN

BYDF engaged the local community by reaching out through its existing network of strategic partners to explore linkages and create collaborations that would maximize social impact. For instance, the partnership with Greener Way enabled BYDF to encourage the collection of waste paper at offices and other partner locations. The partnership with Nazhoen Pelri Drug Rehabilitation Centre created a direct link between work, economic benefit, and social integration for recovering drug users post rehabilitation.

RESULTS AND SCALING UP

The Eco-Friendly Initiative is Bhutan's first ever and currently only waste paper recycling facility. The Initiative promotes waste management efforts for a greener, cleaner environment and recycles waste paper collected in urban areas. In an hour, the facility produces approximately 720 egg trays from about 47kg of waste paper, thus producing 3,500 to 5,000 egg trays every day. The facility produces up to 1.3 million trays per year, recycling approximately 100 tonnes of waste paper and card board. The paper and cardboard which is taken out of the waste stream would, otherwise, polluted freshwater streams and rivers, dumped in a yard or burnt at the household level.

The Eco-Friendly Initiative trains and employs recovering young drug users to reintegrate them into society. Recovering youth benefit from the programme by being offered employment opportunities, and so far nine recovering youth who had undergone rehabilitation are employed. The facility has generated income to contribute towards sustaining the Drug Education and Rehabilitation Services program of the BYDF.

The project has shared its experience and lessons with the Rotary Club of Nepal and Building Resources Across Communities (BRAC), one of the largest NGOs based in Bangladesh. Both organizations have indicated that they are interested in efforts to scale up and replicate the initiative.

EXPERIENCES AND LESSONS LEARNT

The project gained lot of popularity through media coverage, particularly, through social media posts by SGP Bhutan.
The project found that promotion of good practices was as important as other project components in creating awareness.
The initial support received from SGP was crucial in providing the seed funding and for boosting confidence in the project. This, in turn, helped BYDF in the search for co-financing from other agencies. Support and cooperation from other partners and government support were also instrumental in the implementation of the project. For instance, the recycling facility was established on a space of 13,977 sq. feet of land leased by government for long term for a minimal fee (approximately US$250 per year for thirty years). Additionally, the competency of the BYDF itself and the maturity of the organization contributed to the success of the initiative.
One key innovation of the project was the synergy that it created by tackling multiple development objectives in an integrated way. Thus, environmental benefits were achieved through waste recycling, while social benefits were gained through employment and reintegration of recovering youth into society, and economic benefits were produced through the sale of locally made products which, in turn, generated income to sustain BYDF programmes.

CASE 4: CHINA

Waste to resources: community campaigns for a better environment

GRANTEE
Green River Environmental Protection Association of Sichuan

COUNTRY
China

LOCATION
Tanggulashan Township, Qinghai Province

SGP CONTRIBUTION
US$50,000

IN-CASH CO-FINANCING
US$11,260

IN-KIND CO-FINANCING
US$61,575

START DATE
December 2011

END DATE
December 2013

PHOTO: SGP CHINA

PROJECT CONTEXT

After the opening of the Qinghai-Tibet railway in 2006 the rapid increase in tourism in the Qinghai-Tibet Plateau caused a significant increase in waste generation. This threatened both the grassland ecology of the plateau and the water quality of the Yangtze River. In an investigation, conducted by the Green River Environmental Protection Association, to study waste disposal and pollution trends at the source of the Yangtze River they found that waste was primarily thrown away or burnt in the open air. Moreover, Tanggulashan Township with an administrative area of 470,000 km^2 had only four full-time sanitation workers which impacted the efficiency of the waste management efforts to reduce garbage pollution and POPs produced by garbage burning, the Green River Environmental Protection Association campaigns to educate local residents about environmental protection and implement separate waste collection.

PROJECT IMPLEMENTATION

In 2012, the Water Ecological and Environmental Protection Station of the Source of Yangtze River was established by the Green River Environmental Protection Association, which promoted two campaigns designed to clean up the grasslands: "Trade Rubbish for Goods" and "Take Away One Bag of Garbage"respectively. The "Trade Rubbish for Goods" campaign was designed to provide incentives to the local communities and herdsmen to collect the dispersed wastes in the pastoral region, especially non-degradable, toxic and hazardous waste, and trade it for food and daily necessities at the station. This mechanism increased the level of trust between the volunteer staff and the local community, which made collaboration smooth and changed herdsmen's attitude to waste management over time. At the station, volunteers sorted the waste and packaged it for transportation to the nearby city of Golmud.

The second campaign, "Take Away One Bag of Garbage", was designed based on the station's proximity to the plateau highway, which brought a lot of tourism. The station became a natural stopping point for tourists, who then were encouraged to take with them one bag of recyclable waste from the plateau. This initiative helped set up a normalized system of waste collection and transportation out of the pastoral area of the plateau. The tourists were also educated on the ecology and vulnerability of the grasslands, which helped spread the message about environmental protection and waste management.

RESULTS AND SCALING UP

Tanggulashan town has seen a cleaning up of its waste, and sanitary conditions have improved. Every shop in Tanggulashan has been equipped with a small garbage bin and each street has a larger bin. By the time the project ended, more than 60,000 pieces of non-degradable waste were recycled, including plastic bottles and zip-top cans, and more than three thousand used batteries, as well as 2,000 kilograms of metal, glass, rubber and e-waste, had been recycled. Five categories of handicrafts were designed, and the station trained 40 people, including 25 women. Twenty of the female trainees who participated in the project earned a total income of ¥17,995 (aboutUS$2,800) during the implementation, providing the community with an alternative revenue stream.

In 2013, nearly 3,600 vehicles stopped by the protection station and over 10,000 tourists participated in the environmental protection advocacy activities. In total, more than 4,000 bags of non-degradable wastes were taken to designated disposal sites in Golmud that year. In 2015, more than 35,000 plastic bottles and metal cans, as well as about three trucks of used paperboard were recycled by the "Trade Rubbish for Goods" campaign. About 150 tonnes of waste is prevented from burning each year. Volunteers continue to come from all over the country. After returning to their own cities, they become "greens seeds" and disseminate ecological protection awareness via social media, lectures, and local media, promoting advocacy and helping to change behavior in their own communities. Eight recycling stations are slated for construction on the plateau, following the waste collection and transportation model developed by Green River Association. It is also being replicated and promoted in Hoh Xil and in the Three Rivers Nature Reserve with support from Green River Association.

The initiative has earned many awards. In 2013, the "Trade Rubbish for Goods" project was awarded the "Water Environmental Protection Public Welfare Society Group Award" by China Guangcaishiye Foundation. In 2014, the "Ecological Protection of the Source Region of Yangtze River" has been awarded the 3rd China Charity Project Implementation Silver Award. The initiative was also awarded the First Prize for Environmental Protection (Pioneer Award) by Ford Conservation and Environment Grants in 2014, for their efforts to reduce local waste pollution and protect wildlife.

EXPERIENCES AND LESSONS LEARNT

Following the waste management method "decentralized collection - centralized sorting - long-distance transport - centralized disposal," non-degradable and hazardous wastes can be moved from surrounding grassland and the station, which in turn cleans up the source region of the Yangtze River. The project also took strategic advantage of its location when encouraging passing vehicles to take packed recycled waste with them when they leave the plateau. The station itself ensured that the project could be conducted smoothly and take root in the local community. Support from the local government also played a vital role, and the successful and mutually beneficial involvement of the herdsmen ensured long-term sustainability and the success of the project.


PHOTO: SGP CHINA


PHOTO: SGP CHINA

CASE 5: GHANA

Communities pilot chemical free agriculture

GRANTEE
Abrono Organic Farming Project

COUNTRY
Ghana

LOCATION
Forikrom-Techiman

SGP CONTRIBUTION
US$42,700

IN-CASH CO-FINANCING
US$20,400

IN-KIND CO-FINANCING
US$30,400

START DATE
August 2013

END DATE
July 2015

PHOTO: SGP GHANA

PROJECT CONTEXT

The population in Techiman municipality relies on agriculture and approximately half of the households are involved in some form of agricultural activity. Pests and disease are a severe problem for agriculture in Ghana, and it is estimated that 45 percent of annual crops get destroyed because of this (National Development Planning Commission, 2010). Consequently, pesticides and herbicides are heavily used to control and eradicate crop pests. Organochlorine pesticides, such as DDT, lindane, and endosulfan are used due to their low cost, high efficacy, and suitability for a broad range of different crops despite harmful effects. Intense agriculture and extensive chemicals use have led to soil depletion in Techiman and the declining soil nutrient levels provide less than ideal conditions for good crop yields.

In Techiman municipal district, only about 10 percent of solid waste is properly disposed of and about half of the generated waste is dumped in open spaces, posing grave risks to human health and the environment. An average of 0.40-0.45kg of waste is generated per capita in Ghana annually, which adds up to about three million tonnes of waste across the country (Environmental Protection Agency of Ghana, 2012). Faced with these challenges, local NGO Abrono Organic Farming Project (ABOFAP) took the initiative to develop and promote waste processing systems that required minimal mechanical equipment. Their goal was to effectively manage community waste and to utilise organic manure as fertiliser to reduce the presence of POPs in the environment while securing higher crop yields for a growing population.

PROJECT IMPLEMENTATION

With involvement of an initial group of 50 people, ABOFAP started collecting and processing domestic solid waste, which they processed in a facility in Forikrom. The goal was to use organic manure as fertilizer and replace agrochemicals. Two plastic bins were distributed to each participating household so that they could sort their waste at the source, based on dry waste or wet waste. ABOFAP also engaged in public awareness efforts and educated the stakeholders and the community in waste management techniques with an emphasis on reducing, reusing, and recycling waste.

A one-hectare demonstration farm operated by fifteen trained farmers was established to showcase the efficacy of using organic fertilizer, neem oil pesticide, and rainwater irrigation. The wet waste was taken to composting sites via an established collection system, and a simple aerobic vermicomposting process was used to turn the degradable waste into compost. A local social enterprise

PHOTO: SGP GHANA

PHOTO: SGP GHANA

was established to manage the financial resources, provide technical supervision, and manage the project. The project also introduced integrated pest management system where Neem leaves and seeds are processed (using pepper and soap) to produce Neem pesticides to control pests on the farms.

RESULTS AND SCALING UP

Since the start of the project 126 tonnes of solid waste have been biologically decomposed under controlled conditions by microorganisms, using primarily bacteria and fungi. This waste would, otherwise, have been burnt or dumped in local wetlands. The project has replaced 162,000 kilograms of chemical fertilizers with organic compost. The project has replaced 67,500 liters of agrochemicals used in agriculture with organic pesticides, mainly neem extracts.

The facility holds quarterly hands-on training workshops on composting and pesticides preparation. This training has benefitted 35 farmer groups (with 20 member each) selected from the nearby communities so that they may replicate the project in their own communities. The processing facility produced 440 bags, weighing 25 kg each, of organic fertilizer every 40 days for sale and distribution. In addition, 1,350 liters of Neem pesticides and 320 liters of liquid organic fertilizers were produced every quarter. The revenue generated by the sale covered the upfront expenses and operating cost.

Techiman municipality is home to two inland shallow marsh wetlands covering a total of 4.5 hectares. These wetlands perform a range of important ecosystem services and served as the dumping ground for the local community's solid waste. Virtually no waste is now deposited in the wetlands and they have been protected from pollution by local bylaws and restored.

The project business strategy has been replicated in Osaekrodua, in the Central Region. The Techiman Municipality has adopted the strategy and will support farmer groups within the rural municipality to replicate.

EXPERIENCES AND LESSONS LEARNT

ABOFAP emphasizes the importance of community stakeholders involvement to ensure that the project stays relevant and serves the community in the best possible way. The long-term sustainability of the project is contingent on effective communication with the relevant stakeholders and their continued support. Local bylaws are also helpful in encouraging waste segregation and collection at the household level.

The project's emphasis on promoting reuse, recycling, and recovery of solid waste helped facilitate a paradigm shift, from the current use and throw away mentality to being able to use the waste productively and minimise reliance on agrochemicals. Establishing a social enterprise to manage the processing facility and organic compost production has proven effective. The management of a revenue stream for the local community, and training of new environmental entrepreneurs has been essential for the long-term success of the project.

CASE 6: KAZAKHSTAN

Farmers association spurs development of law on organic agriculture

GRANTEE
Republican Public Association of Organic Agriculture

COUNTRY
Kazakhstan

LOCATION
Kostanai oblast, Kazakhstan

SGP CONTRIBUTION
US$49,470

IN-CASH CO-FINANCING
US$77,900

IN-KIND CO-FINANCING
US$9,720

START DATE
September 2012

END DATE
October 2016

PHOTO: SGP KAZAKHSTAN

PROJECT CONTEXT

The Kostanai region of Kazakhstan, also known as the Kostanai oblast, is home to Naurzum State Nature Reserve, a part of the UNESCO heritage site Saryarka in Northern Kazakhstan. The reserve protects 3,077 km^2 of steppe, semi-desert, and forest ecosystems distributed in three main areas connected by protected eco-corridors. During the Soviet period between 1920 and 1991, the oblast saw chemical and technological intensification as a result of wheat production. Over time, the intensive agricultural production resulted in soil depletion and mineralization, which is a trend that continues to this day.

In the last 20 to 40 years, the soils of Kazakhstan have lost 8 to 30 percent of their humus. In addition, annual loss of the humus in arable black soils of Northern Kazakhstan is estimated at 0.8-1.0 tons per hectare (Saparov A.S., Faizov K.Sh., Mamutov Zh.U., 2006). Soil depletion has in turn led to more intensive use of mineral fertilizers and pesticides, which has contaminated the soil with alloy compounds, chlorides, and sulphates. Government subsidies covering 50 percent of mineral fertilizer costs have provided perverse incentives and contributed to the sustained and increased use of these chemicals in Kazakhstan. Organic fertilizers receive no such subsidies. In the five years prior to the project inception, the use of mineral fertilizers in Kostanai increased 4.4 times. Crop yield and quality continued to decrease in the oblast, whose main economic sector is agriculture.

PROJECT IMPLEMENTATION

In response to the growing interest in organic agriculture among farmers in Kostanai, the Republican Association of Organic Agriculture decided to initiate a demonstration project to show farmers the benefits of organic farming. The project had two objectives, the first was to provide technical support to farmers and to introduce organic fertilizer in agriculture as an alternative to the chemical and synthetic fertilizers currently employed. The second objective was to raise awareness about organic agricultural methods through capacity building and sharing, and media outreach. Overall, the long term vision of the Association was to promote organic agriculture in Kazakhstan.

The project, initially involved six local farmers who were interested in learning about and employing organic agriculture techniques on 200 ha of their croplands each. The farmers had to sign an agreement and pledge to refrain from using mineral fertilizers for the duration of the project. They also had to agree to pay 50 percent of the cost of the organic fertilizer they would be using. The remaining 50 percent

PHOTO: SGP KAZAKHSTAN – OLGA ROMANOVA

were provided by the project. This allowed the farmers to overcome some of their scepticism and encouraged them to take ownership of the project.

Two additional farms later joined the project, and these first eight farms became the first in Kostanai to obtain organic certification and are now in the process of transitioning fully to organic farming, bringing the total area of chemical free lands to 14,050 hectares.

RESULTS AND SCALING UP

Together with SGP and other collaborators, the NGO was able to promote organic farming on eight farms, covering a total of 14,050 hectares of lands. This saves 2,180 tonnes of synthetic fertilizer and 14 tonnes of pesticides used every year. Thanks to organic fertilizer, flax crop yields on these farms have increased by 22.8 percent, sunflower yields by 11.5 percent, wheat by 11.2 percent and lentil crops by 21.6 percent.

As a way to expand the application of the project's results representatives from 50 farms in five oblasts have received consultations and practical advice on organic farming and how to decrease the use of chemicals in their agriculture in order to help them replicate the project. They have also received information on the process of converting to organic farming and the possibilities for organic produce distribution.

To further promote organic agriculture, the Association of Organic Agriculture worked with the Food and Agriculture Organization, the Ministry of Agriculture and other NGOs to draft a law on organic agriculture, with a view to promote enabling government policies to subsidize organic fertilizers, organic farming and organic certification. The Law on Organic Agriculture was signed on November 27, 2015.

EXPERIENCES AND LESSONS LEARNT

The Association of Organic Agriculture's main challenge in implementing the project has been the lack of awareness among farmers and local authorities about organic farming, which contributed to their scepticism about the efficacy of organic farming practices and reluctance to adopt this approach. Conversely, their methods of using chemical and mineral fertilizers had been practiced for generations. Both local authorities and the farmers were also not aware of the potential opportunities accompanying organic produce, such as higher prices, new export possibilities, etcetera. The project's strategy of conducting field visits and demonstrating project results helped to raise awareness and increase the adoption of organic agriculture. However, despite these efforts, the reliance on chemical inputs remains a persistent problem for the agriculture sector and the grantee partner continues to actively disseminate information to new audiences.

CASE 7: REPUBLIC OF MACEDONIA

Engaging children and youth in urban waste management

GRANTEE
Training for Sustainable Development

COUNTRY
Former Yugoslav Republic of Macedonia
(Republic of Macedonia)

LOCATION
Skopje, Republic of Macedonia

SGP CONTRIBUTION
US$26,000

IN-CASH CO-FINANCING
US$12,500

IN-KIND CO-FINANCING
US$12,520

START DATE
July 2012

END DATE
January 2013

PHOTO: SGP REPUBLIC OF MACEDONIA

PROJECT CONTEXT

Skopje is the capital of and largest city in Republic of Macedonia, and is home to around 618,000 citizens. The city has a well-organized waste collection system but the waste is not segregated and the collected waste is dumped in landfills or burned. The NGO Training for Sustainable Development, known locally as ORT, noticed the problem of littering in the city streets, with particular concern for the numerous plastic bottles left unrecycled. Plastic bottles are made of polyethylene terephthalate (PET) and when dumped in landfills or in nature they take about a thousand years to biodegrade, in addition to taking up an enormous amount of space. When PET waste is burned, dioxins – a persistent organic pollutant – are released into the environment. ORT came up with a plan for waste management with the goal of reducing the amount of PET waste in Skopje streets through collection and recycling.

PROJECT IMPLEMENTATION

When ORT first presented the waste management plan to municipality employees and decision makers in five Skopje municipalities, the idea was initially rejected. While ORT was told their plan was good and useful, it was thought not feasible due to a lack of personnel. ORT's team revised their plan and came up with the idea of engaging citizens in sorting the waste at source, with primary focus on students in schools.

With support from the GEF Small Grants Programme and in collaboration with the municipality of Chair-Skopje, the municipality of Centar-Skopje, and Skopje's public enterprise "Komunalna Higiena" (or Communcal Hygiene), ORT launched an educational outreach program in 2011. The project was later extended to the municipality of Karposh and the municipality of Aerodrom, thus reaching four of the ten municipalities that make up the city of Skopje. Activities were designed for students to engage in learning about POPs and the environment at school. Collection hubs were set up in 29 primary schools in the four municipalities so that students could easily bring plastic waste with them to school and dispose of it there. Transportation companies were engaged to pick up the waste and transport it to recycling facilities. Workshops were organised to improve project management, transfer knowledge, and support capacity building through exchange of positive project experience.

PHOTO: SGP REPUBLIC OF MACEDONIA

PHOTO: SGP REPUBLIC OF MACEDONIA

RESULTS AND SCALING UP

In undertaking this project, ORT came up with an innovative approach focusing on student engagement. They organised a competition between the schools and communities involved to see who could collect the most waste. Awards were given to the best class, best school, and best community and the results list was published in all schools and municipalities. This competition between schools ensured that both teachers and students worked hard to do their best every month. Additionally, children were given gifts based on their performance and successful teachers were featured on TV channels. As a result of these positive incentives, the amount of plastic waste collected increased every month during the project.

In the course of the project 10,000 school children were involved in collecting plastic bottles, which increased segregation and collection of plastic waste by ten percent. Approximately 5,909 kilograms of PET bottles were collected and sold which generated an income of US$2,844 as a resource for the schools. At the end of the school year, the funds from the PET plastic bottles sold were shared with 30 percent invested in the NGO and 70 percent used by the school for supplies. Moreover the collection of plastic bottles has become a habit among most students in the targeted schools.

The project eventually reached around 30,000 residents of Skopje with information about the harmful effects of POPs with around 7,600 students participating in educational lectures for environmental protection. The project also generated a number of benefits for the local community. For example, the company used to transport the waste increased their income due to their regular engagement by the project. The project has been replicated on a smaller scale in three other towns in Republic of Macedonia: Gevgelija, Kihevo (Kercova) and Zelenikovo. The four municipalities in Skopje involved in the project have continued and expanded their efforts by placing collection bins in all school within the municipalities.

EXPERIENCES AND LESSONS LEARNT

A project of this magnitude was challenging for ORT and it was initially difficult to manage the project without a complete understanding and control of the waste management process. In particular, they found out that it was essential to have a reliable transportation partner involved. Timely collection of the waste was critical so the bins would not fill up and participants would not be demotivated by finding no available bins to dispose of their waste. Thorough groundwork in citizen engagement was also crucial for the project's success. During the project implementation ORT continuously raised awareness among youth by educating them in the classrooms about the environment and plastics. Children sometimes had a difficult time participating in the competition because their parents were sceptical about the value of waste collection. Thus, the involvement and education of parents as stakeholders was also important for activities to succeed, both in schools and at home. ORT also organized training and capacity building activities for its partners in the municipalities and government officials, which promoted a conducive policy environment for the project's success.

CASE 8: MALAYSIA

Empowering consumers to make POPs free choices

GRANTEE
Consumer Association of Penang

COUNTRY
Malaysia

LOCATION
National
(particularly Penang, Kedah, Perak, Selangor, Pahang, Negeri Sembilan)

SGP CONTRIBUTION
US$50,000

IN-CASH CO-FINANCING
US$22,129

IN-KIND CO-FINANCING
US$51,927

START DATE
December 2012

END DATE
November 2014

PHOTO: SGP-MALAYSIA – CONSUMER ASSOCIATION OF PENANG

PROJECT CONTEXT

Persistent Organic Pollutants (POPs) are toxic, persistent, mobile and thus a global issue. POPs may include pesticides, industrial chemicals, or unwanted by-products of industrial processes or combustion. Organisms at the top of the food chain, including humans, usually accumulate the highest concentration of POPs over their lifetime. The evidence of detrimental effects of some POPs on living organisms, often on entire populations, demonstrates the threat to biodiversity and the potential for disruption at the ecosystem level.

Malaysian consumers are largely unaware of the potential and actual harm of these chemical hazards, and adequate testing for POPs or their monitoring for safety is not in place. The Consumers' Association of Penang (CAP) initiated a project supported by SGP with the goal of raising public awareness and understanding of POPs in the states of Penang, Perlis, Kedah, Perak and Selangor. The project aimed to reduce consumer exposure to POPs through changing consumption and production patterns.

PROJECT IMPLEMENTATION

CAP's mission was to reduce public exposure to POPs by raising awareness on the hazards of POPs pesticides such as aldrin, chlordane, DDT, mirex, heptachlor and unintentionally produced POPs such as dioxins, furans and PCBs from some industrial processes and combustion. The target groups were the general public, students and farmers. To raise awareness in the population, CAP engaged in a range of activities. They set up consumer brigades comprised of groups of active consumers to network with local farmers to achieve change. Articles on POPs were published in the magazine the Utusan Konsumer and discussions and training sessions were held to demonstrate to the farmers the different alternatives to POPs products.

CAP campaigned for consumers to grow their own food to reduce the cost of purchasing vegetables and to create food security. In this way families were able to have direct access to a diversity of fresh nutritionally-rich foods, save on food bills, earn extra income from sales of excess garden products and have additional food supply. Consumers were also discouraged from buying unnecessary disposable plastic products.

RESULTS AND SCALING UP

CAP worked with at least 50 different groups, from welfare institutions, social groups, women's groups, youth groups, senior citizens, orphanages, farmers' groups, multi-religious groups, health groups, and societies in universities to

change food production methods in Malaysia and promote home gardening. In total, half of the project participants were women and five of the consumer brigades were led by women. There was also a significant involvement of indigenous groups in Sabah, Sarawak, and peninsular Malaysia, and many indigenous communities adopted natural farming methods learned from CAP.

The project demonstrated viable and cost-effective alternatives to POPs products, taught farmers to limit the amount of waste going to landfills and incinerators, and encouraged farmers to use organic farming methods to eliminate use of POPs and hazardous pesticides. As a result of CAP's capacity building training and follow-up activities with farmers 42 farmers converted to, or are in the process of converting to chemical-free farming. The project area covers a total of 80 hectares and the project expanded from the original five states to include Negeri Sembilan and Pahang. Participants from other states and countries also attended some of the training and educational programmes conducted in targeted states.

At the policy level, CAP was involved in the drafting of the National Implementation Plan on POPs. The government has yet to ratify the Stockholm Convention through enabling legislations. CAP has also actively pursued the ban on asbestos and has called on the government to prohibit lead-coated products and paints containing lead.

CAP produced a book on the nature of POPs and successful initiatives to minimize exposure to POPs, which will facilitate outreach and the dissemination of useful information to more people. Even after project funding was exhausted, the project is still operative and the public actively seeks advice from CAP on organic farming, natural farming products, and guidebooks on home nutrition gardening.

EXPERIENCES AND LESSONS LEARNT

There were a number of key aspects of the project's success. People were willing to change their behavior to protect their own health and that of their families, by minimizing their exposure to POPs. Despite this, changing the mindset of the farmers was a difficult task due to the enormous influence of the agro-chemical industry and their aggressive promotion of agrochemicals. CAP sometimes encountered farmers unwilling to shift from agrochemical farming for fear of losing their crops and income. It took time to gain the farmers' trust and for them to start phasing out agrochemicals. Therefore, actions taken to convince farmers to switch to natural farming needed to be persistent and progressive.

Through experience, CAP found that women who are empowered with knowledge seek to make changes for their family and in their society. Women have a special regard for their family's health and the change often starts at home. A critical element in empowering people with no previous knowledge of POPs was the simplicity and accessibility of the guidelines and suggested actions produced by CAP. Having the guidance understood made communication easier between the consumer brigades, the farmers, and the community.

PHOTO: SGP-MALAYSIA – CONSUMER ASSOCIATION OF PENANG

PHOTO: SGP-MALAYSIA – CONSUMER ASSOCIATION OF PENANG

CASE 9: MAURITIUS

Reducing landfill waste through compost production

GRANTEE
Association Kinouété

COUNTRY
Mauritius

LOCATION
Pointe-aux-Sables

SGP CONTRIBUTION
US$50,000

IN-KIND CO-FINANCING
US$46,406

START DATE
March 2014

END DATE
March 2016

PHOTO: SGP MAURITIUS

PROJECT CONTEXT

Petit Verger Prison is a medium-security prison facility in Pointe aux Sables in Mauritius. The prison has both pre-release and post-release schemes for prisoners, in order to facilitate their rehabilitation within society. The University of Mauritius carried out a waste assessment study at the prison. The results of the study indicated that 52 percent of the total waste generated was yard waste, 38 percent was organic waste, and the rest were paper, plastics and metals. All of the waste primarily ended up in landfills. The Petit Verger Prison has great potential for composting its organic waste, which represents a large proportion of the waste stream. With increasing amounts of waste going to the landfills, there is an urgent need to create and establish a sustainable waste management strategy both at the prison level and in the community. Land filling of waste is considered as the last treatment option in the Integrated Solid Waste Management (ISWM) hierarchy, especially for island environments such as Mauritius. The GEF Small Grants Programme supported Association Kinouété to establish a sustainable waste management scheme to minimize the solid waste going into the landfill.

PROJECT IMPLEMENTATION

In addition to SGP, Association Kinouété received support from the University of Mauritius, the Mauritius Prison Service (MPS), Mouvement Civique de Pointe aux Sables (MCPAS) and the local community. Informational pamphlets were distributed to the local community to improve their knowledge and understanding of composting, source-segregation practices, sustainable waste management practices in the Petit Prison and the Pointe aux Sables community, and waste management in Mauritius. This was followed by training sessions for the detainees and prison officers on the basic principles and techniques of composting and compost use.

The prison preformed a windrow composting trial by which the organic and biodegradable material is laid up in long rows. Atics Ltd provided support to the project by offering transportation facilities for green wastes from different collection points in the region of Pointe aux Sables to be carried to the composting site, Petit Verger Prison. Education and awareness programmes were carried out in various establishments and communities to highlight the benefits of waste derived compost and the positive effects of compost use for soil improvement. A monitoring and reporting system has been put in place which helps inform future planning, by highlighting deficiencies in service delivery and identifying areas for improvement.

PHOTO: SGP MAURITIUS


PHOTO: SGP MAURITIUS

RESULTS AND SCALING UP

Around 2 tonnes of waste is generated and collected by the prison for composting on a weekly basis. An estimated yearly collection of green waste is approximately 56 tonnes while the estimated yearly production of compost is in the range of 15 to 20 tonnes. Additionally, greenhouse gas emissions amounting to 44,767 tonnes of CO_2 annually have been avoided. Since November 2015 composting has started at Petit Verger Prison and to date nearly ten tons has been produced and used for organic gardening by the Ministry of Environment and other government agencies, in addition to use by Petit Verger Prison. One ton of the compost was donated to the public for the organization of some special events such as Earth Day during the visit of the President of Republic of Mauritius to Petit Verger Prison.

In line with the Mauritius Prison Service's (MPS) Food Security initiatives, some 50 breadfruit plants were planted at Petit Verger Prison (PVP) in the context of World Food Day 2016. Only compost produced locally from the green waste was used during the plantation. Another 25 breadfruit plants were also planted at the Women's Prison in Beau Bassin using the compost produced. The demand of this product is rising day by day as the interest of the public is growing in organic farming. The compost is packed in bags of 2.5 kilograms and sold at MUR 25, less than US$1.

The project is being promoted through different platforms in Mauritius, and has been given good exposure by the University of Mauritius at the national and regional level. On August 14, 2014, the project received the Public Service Excellence Award, for their work in adopting modernized methods for a green civil service. The award was granted by the Ministry of Civil Service and Administrative Reforms.

EXPERIENCES AND LESSONS LEARNT

Sustainable waste management requires coordinated and streamlined work at various stages of waste management. This project showcases the success and relatively smooth implementation that follows the use of good practice techniques at every stage, from the point of collection through transport, storage, and treatment to final disposal. Capacity development was critical to the success of this project. Team members were properly trained to understand the problem, work with the challenges involved on a daily basis, and to look for simple approaches for innovative and sustainable solutions. An enhanced earning scheme that provided earnings to detainees also ensured that a dedicated team of detainees would be engaged in this effort. This scheme motivated prisoners by engaging them in productive and constructive activities while they were undergoing their sentence, and inculcated in them a strong work ethic.

CASE 10: NEPAL

From pilots to policies: improving medical waste management

GRANTEE
Center for Public Health and Environmental Development (CEPHED)

COUNTRY
Nepal

LOCATION
Nepal

SGP CONTRIBUTION
US$84,918

IN-CASH CO-FINANCING
US$80,650

IN-KIND CO-FINANCING
US$200,454

START DATE
December 2009

END DATE
May 2015
(two projects were supported by SGP during 2009-2015)

PHOTO: SGP NEPAL

PROJECT CONTEXT

In Nepal, a total of 274 hospitals generate 10,520 tonnes of non-hazardous healthcare waste per year and 3,094 tonnes of hazardous medical waste (Government of Nepal, 2014). The waste was disposed of as regular city garbage, which presented a problem for municipal waste collectors. It was also burnt in incinerators which released persistent organic pollutants (POPs) such as dioxin to the environment. Both of these practices are a threat to human health. Following the success of an initial SGP supported project to manage waste during 2010-2012, Center for Public Health and Environmental Development (CEPHED) sought grant funding from SGP to launch a new initiative to influence the healthcare sector and build momentum for the implementation of clear policy initiatives.

The project sought to address the unintentional release of POPs to the environment, from waste burning at healthcare facilities as well as from open burning. Efforts were also aimed at limiting the release of furans and polychlorinated biphenyls by eliminating the use of contaminated transformer oil in welding machines. Additionally, the project advocated to ban the import and use of endosulfan in Nepal.

As POPs are known to bio-accumulate, these chemicals were increasingly detected in soil, water, fish and aquaculture, and vegetables grown and marketed in urban areas such as Kathmandu, Nepal's capital. While there was a degree of awareness among some stakeholders such as healthcare workers and welders; however, awareness needed to be raised among all stakeholders. The increasing unintentional release of POPs such as dioxins and furans as a result of waste burning required sustained levels of engagement.

PROJECT IMPLEMENTATION

In addition to the support it received from SGP, CEPHED also generated broad support from international organizations such as UNEP and WHO, the government of Nepal, the Federation of Grill and Steel Fabricators, and the healthcare sector when it launched the project to demonstrate best practices in avoiding waste burning and raising awareness on POPs for policy makers, healthcare workers, waste managers, metal workers, and the general population of Nepal.

PHOTO: SGP NEPAL

The project engaged the local community and key stakeholders by forming a Waste Management Committee that targeted the appropriate professional organizations for outreach, such as the Metal Fabricators Association. To convince stakeholders to reassess their practices and develop new methods, CEPHED produced a number of briefing papers on POPs, PCBs, healthcare waste management systems and mercury-free healthcare to distribute among interested persons in these communities. During the two years, as a result of the project's awareness raising strategy, the media also produced over 100 news articles on medical waste and POPs, and both social media and several national news channels covered the issues to increase the level of awareness of the general public.

From 2013 to 2014, a series of six training sessions in different locations throughout Nepal were conducted on Healthcare Waste Management and POPs with 293 participants benefitting from these trainings. Five awareness-raising workshops and two model development sessions on PCBs were also conducted, benefitting over 500 participants. Three hospitals received installation of full waste management systems, and were recognized as model hospitals and demonstration sites for transfer of best available techniques and best practices in medical waste management. To mitigate the release of PCBs and POPs emissions from the steel industry, three model metal workshops were selected and outfitted with dry welding machines. The new technology eliminated the need for use of contaminated transformer oil and subsequent emission of PCBs, dioxins and furans were avoided. Additionally, CEPHED produced and disseminated a publication, "State of PCB Contaminated Transformer Oil and Equipment" to inform and update stakeholders about this problem.

RESULTS AND SCALING UP

The project succeeded in raising awareness and building capacity among concerned stakeholders, by providing access to good information about POPs and hazardous waste. The model hospital and metal workshop sites offered demonstrations of environmentally sound waste and chemicals management. Obsolete pesticides and POPs were safely sent back to Germany to be disposed in a safe manner, and the use of PCB contaminated transformer oil has been reduced. The pesticides stored in warehouses were studied for their contamination level to envision possible and potential site reclamation processes and the results were shared with the concerned government agencies. This information was also included in the new National Implementation Plan (NIP 2017) of POPs during its development.

This project, as well as the earlier CEPHED initiative, contributed to the enactment of the Solid Waste Management Act of 2011 and the Solid Waste Management Regulation of 2013, which define key aspects of healthcare waste management roles and responsibilities. Project learning and experiences were also shared and contributed towards development of Health Care Waste Management Guideline 2014 by the Government of Nepal, Ministry of Health and Population. This guideline has been adopted by the Government and is now required for all hospitals to follow.

The great success of the first SGP supported CEPHED project resulted in wide recognition and praise. CEPHED was awarded one of only two of the 2011 Stockholm Convention PCB Elimination Network Awards for Outreach and Capacity Building and The Grill Traders National Award 2011. In Nepal CEPHED was also awarded with the Environment Conservation Award 2012 from the Government of Nepal, Ministry of Environment.

Healthcare waste managers and metal workers who visited the model hospitals and metal workshops requested technical support to replicate the initiatives. CEPHED has received requests to develop similar, environmentally sound healthcare waste management systems in other hospitals in Nepal.

EXPERIENCES AND LESSONS LEARNT

Among the main lessons learnt from CEPHED's projects in Nepal is the recognition of the difficulties in translating technically complex POPs and chemicals language in a manner that is accessible to the layperson. Barriers to successful knowledge exchange include limitation of budget and resources to continue research, generation of additional and new information. Ensuring effective and wide dissemination of knowledge and information continues to be a a key need.

PHOTO: SGP NEPAL

Conclusions

EXPERIENCES AND LESSONS LEARNT FROM COMMUNITY-BASED CHEMICALS AND WASTE MANAGEMENT

SGP's experience working to empower communities to address chemicals management challenges shows that local people in different locations can develop and implement innovative solutions to address chemicals and waste problems. Communities empowered with knowledge, funding and technical support can identify and implement effective local activities to avoid, reduce and phase out the use of harmful substances and manage the flow of resources use in a circular stream. However, despite the fundamental needs of poor and vulnerable communities and countries' obligations to address the challenges of chemicals and waste posed to human health and ecosystems, global efforts have been inadequate to address tackle these challenges in a systemic way and avoid harmful impacts at the community level. Specific lessons from the ten cases documented in this publication have been analyzed in each case study. In addition, there are some cross-cutting lessons learned that can be derived from SGP's experience in these projects as well as its overall community-based chemicals and waste portfolio that are presented below.

Bottom-up initiatives led by local communities can be the driving force for changes, but systemic changes require that actions are coordinated at local, national and global levels. Local communities must be at the forefront advocating and taking action for chemicals and waste management as they are directly affected by chemicals and waste. Local communities can be effective potential beneficiaries of external assistance, while their proximity to the problems and their understanding of local contexts and needs make them creative leaders, active participants and motivated actors. It is therefore important that community-based approaches to chemicals and waste management are actively supported and expanded. However, it is also evident that local success, if not scaled up beyond the community level, will generate results and impacts in a limited area. It is critical to work with national and global actors from different angles of the problems, and consolidate the effort to find solutions in a comprehensive way.

In the case of Kazakhstan, farmers who took part in the project became the first in the Kostanai Oblast to obtain organic certification. Due to the demonstration value of this approach and the results obtained, other actors have been motivated to use organic fertilizers. The leading organization did not just stop at practical operational application of techniques, it also presented the results of the project in different meetings of the Ministry of Agriculture in Kazakhstan. Later the organization worked together with the Ministry, FAO and other NGOs to develop the draft law on organic agriculture. Today the law is signed and provides an essential framework for all involved stakeholders in organic agriculture. While more investment is still needed in development of capacity, now there is a policy and regulatory framework in place under which further work in organic certification can be brought forward to promote reduction in reliance on chemicals in agriculture.

PHOTO: SGP KAZAKHSTAN – OLGA ROMANOVA

Community awareness and local empowerment are key in implementing global chemicals conventions and frameworks. Chemicals and waste issues are highly technical and scientific. The impacts of chemicals and heavy metals on humans and ecosystems are not always obvious to local communities with low awareness and information. Often scientific or medical tests provide needed information for understanding health impacts, however such access to medical care and research may be lacking for poor and vulnerable communities. For example, in the Stockholm Convention, the scientific names of chemicals are listed, but often local people and communities have no knowledge and awareness of what these chemicals are, what products contain them and how they are used. Sometimes different local names are given to the toxic chemicals hence local people may not realize that they may be using highly toxic substances that may even be banned by their governments. People are only willing to organize and undertake initiatives for their collective wellbeing if they are provided with requisite information, knowledge and skills to understand and address the challenges. SGP focuses its work on "localizing" the global conventions dealing with chemicals, in particular the Stockholm convention. SGP projects often include a strong component on information and awareness raising and help to identify harmful chemicals being used at the community level for more effective interventions and to help communities identify safe and practical alternatives.

PHOTO: SGP ARMENIA

All the ten cases in this publication have included awareness raising and community empowerment within their project activities. Awareness raising, training and networking empower local people and communities to undertake activities for sustainable chemicals and waste management. Capacity built in local communities plays an instrumental role in long term sustainability of project results, as the knowledge and understanding at the community level are instrumental in continuation of efforts even after SGP supported projects are completed.

Chemicals and waste management work can be more effective if combined with poverty reduction and other sustainable development efforts for multiple development benefits. Communities use harmful chemicals and heavy metals for their economic activities because they depend on the use of these harmful substances for their meager economic returns. Sometimes they may be aware of the toxicity of the chemicals in use, but because the negative effect is chronic or not immediately discernable, they choose to continue the activities to meet their basic needs in production and use. The use of synthetic fertilizers and toxic pesticides to increase crop productivity, the use of mercury in artisanal gold mining, and the unregulated handling of e-waste are examples of such behaviors. Poor communities face short term imperatives to feed their families and meet immediate basic human needs, and may neglect or ignore long-term negative impacts of chemicals and waste if known. Therefore, local communities must be empowered to find effective alternatives to chemicals for their crops and improvement of livelihoods, while reducing or eliminating the use of harmful chemicals and substances. In China's waste for food project, the project created an innovative model to incentivize local people to recycle waste in exchange for food. Through such combined efforts to tackle poverty and chemicals safety in an integrated manner, environmental benefits, poverty reduction and development benefits can be achieved simultaneously while also resulting in greater sustainability.

Integrated focal area approach to tackle chemicals and waste issues brings in multiple environmental benefits across all GEF focal areas. Chemicals and waste are cross-cutting issues and often are the fundamental cause of environmental degradation in other GEF focal areas. It is recognized that water, biodiversity and land projects should consider chemicals

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and waste problems, and integrate the actions addressing these problems in the project activities. Chemicals and waste, if not managed properly, are released to natural ecosystems and pose threats to a wide range of environmental issues, in other GEF focal areas including water, land, biodiversity. Furthermore waste burning is a usual practice in developing countries, releasing POPs and also greenhouse gas emissions for climate change. SGP projects addressing chemicals and waste issues contribute to the improvement of water, land, biodiversity and climate mitigation and adaptation. For example, in Ghana, in Techniman municipality, 90 percent of the domestic solid waste is dumped with no proper disposal. SGP supported community led composting for organic farming has reduced the use of chemical fertilizer in agriculture and halted land degradation. Furthermore, Techiman municipality is home to two inland shallow marsh wetlands covering a total of 4.5 hectares. These wetlands perform a range of important ecosystem services and served as the dumping ground for the local community's solid waste. Virtually no waste is now deposited in the wetlands and they have been protected from pollution by local bylaws.

National and local policies, standards and procedures in chemicals, heavy metals and waste management provide an enabling environment for scaling up successful community based activities. In many developing countries, there is a lack of regulations or policies on chemicals and waste management. Sometimes such policies may exist on paper but their implementation and enforcement needs to be strengthened. For instance, in the growing organic agriculture sector, many countries do not have national and local policies, standards, procedures and certification systems to regulate and guide production of organic products. With no standards or certification, the market can be sabotaged by low quality food and consumers lose confidence in the products and labels. In Barbados, the Organic Growers and Consumers Association with support from SGP developed and implemented a national organic inspection and certification system that has played a crucial role in regulating the organic agriculture sector.

Similarly, the solid waste management sector which covers domestic solid waste, health care waste and e-waste, requires that governments develop regulatory frameworks and policies for the management of these wastes. It is important for civil society organizations, researchers, government officials and other stakeholders to gather experiences and lessons learnt at local community level, and work with local and national governments to create national policies and legislation on chemicals and waste management that are in line with local contexts and can be effectively implemented. In Nepal, SGP supported activities which contributed to the enactment of the Solid Waste Management Act of 2011 and the Solid Waste Management Regulation of 2013, which define some aspects of healthcare waste management roles and responsibilities. The lessons and experiences of this project also contributed towards development of the Health Care Waste Management Guideline 2014 by the Government of Nepal, Ministry of Health and Population, which was later adopted by the Government and is now enforced in all hospitals.

SGP's flexibility and adaptability enable civil society organizations to work with a diversity of groups including women, youth, indigenous people and other special groups. SGP, with its country driven and community-based approach is able to support a wide variety of civil society organizations working with different segments of the population including

PHOTO: SGP-MALAYSIA – CONSUMER ASSOCIATION OF PENANG

women, youth, indigenous peoples and other stakeholder groups. The flexibility and adaptability of SGP procedures allow access to technical assistance and resources by diverse stakeholders, while projects are connected and can learn from other grantees during the process of implementation. Small local projects are closely overseen by national teams and steering committee members who help in adaptive management, when necessary adjustment of project activities during the implementation stage to respond to emerging or unforeseen challenges. Such flexibility and adaptability are crucial for SGP grantee partners to work with special groups or marginalized social groups that may receive insufficient attention from governments, donors and other actors. For example, in Bhutan, an SGP supported project helped establish the first solid waste recycling facility to produce egg trays. In doing so the project established an employment opportunity to rehabilitate youth recovering from drug or substance abuse. In Mauritius, an SGP project worked with a prison and engaged prisoners in composting and gardening in order to prepare them for reintegration to society after completion of their jail time. The social benefits from these projects, in addition to their global environmental benefits, foster a socially inclusive environment and generate long term sustainability of development efforts.

Inclusive partnerships which place the wellbeing of communities and the planet at the center are needed for chemicals and waste management efforts to succeed.

Chemicals and waste are broadly used and widespread in every corner of the world. The scope and complexity of the problems we are facing require coordinated efforts from all sectors and key stakeholders. Successful chemicals and waste management requires partnerships between governments, international development agencies, civil society organizations, research institutes and academia, and the private sector. These inclusive partnerships should be informed by local contexts and economic needs and built upon a shared vision, goals and principles that place people and the planet at the center. Only through such inclusive partnerships do we have a chance to create a toxicity free sustainable future.

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PHOTO: SGP-MALAYSIA – CONSUMER ASSOCIATION OF PENANG

List of Acronyms

ABOFAP	Abrono Organic Farming Project, Ghana
BNSI	Barbados National Standards Institute
BRAC	Building Resources Across Communities, Bangladesh
BYDF	Bhutan Youth Development Fund
CAP	Consumers' Association of Penang, Malaysia
CEPHED	Center for Public Health and Environmental Development, Nepal
CIS	Commonwealth of Independent States
DDT	Dichlorodiphenyltrichloroethane
FAO	Food and Agriculture Organization of the United Nations
GEF	Global Environment Facility
GIS	Geographic information system
ICCM	International Conference on Chemicals Management
ISWM	Integrated Solid Waste Management
IOIA	International Organic Inspectors Association
MCPAS	Civic Movement of Pointe Aux Sables, Mauritius
MPS	Mauritius Prison Services
NGO	Non-governmental organization
NIP	National Implementation Plan
OECD	Organization for Economic Co-operation and Development
OGCA	Organic Growers and Consumers Association

ORT	NGO "Training for Sustainable Development" in the Former Yugoslav Republic of Macedonia
PCB	Polychlorinated Biphenyls
PET	Polyethylene terephthalate
POP	Persistent organic pollutant
RBEC	UNDP Regional Bureau for Europe and the Commonwealth of Independent States
RBLAC	UNDP Regional Bureau for Latin America and the Caribbean
RBAS	UNDP Regional Bureau for Arab States
RBAP	UNDP Regional Bureau for Asia and the Pacific
RBA	UNDP Regional Bureau for Africa
SAICM	Strategic Approach to International Chemicals Management
SGP	Small Grants Programme
TV	Television
UFSD	Urban Foundation for Sustainable Development
UNDP	United Nations Development Programme
UNESCO	United Nations Educational, Scientific, and Cultural Organization
UNEP	United Nations Environmental Programme
USA	United States of America
US$	US Dollar
WHO	World Health Organization

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SGP The GEF Small Grants Programme

304 E 45th Street
UNDP, 9th Floor
New York, NY 10017
USA

Email: sgp.info@undp.org
Website: www.sgp.undp.org