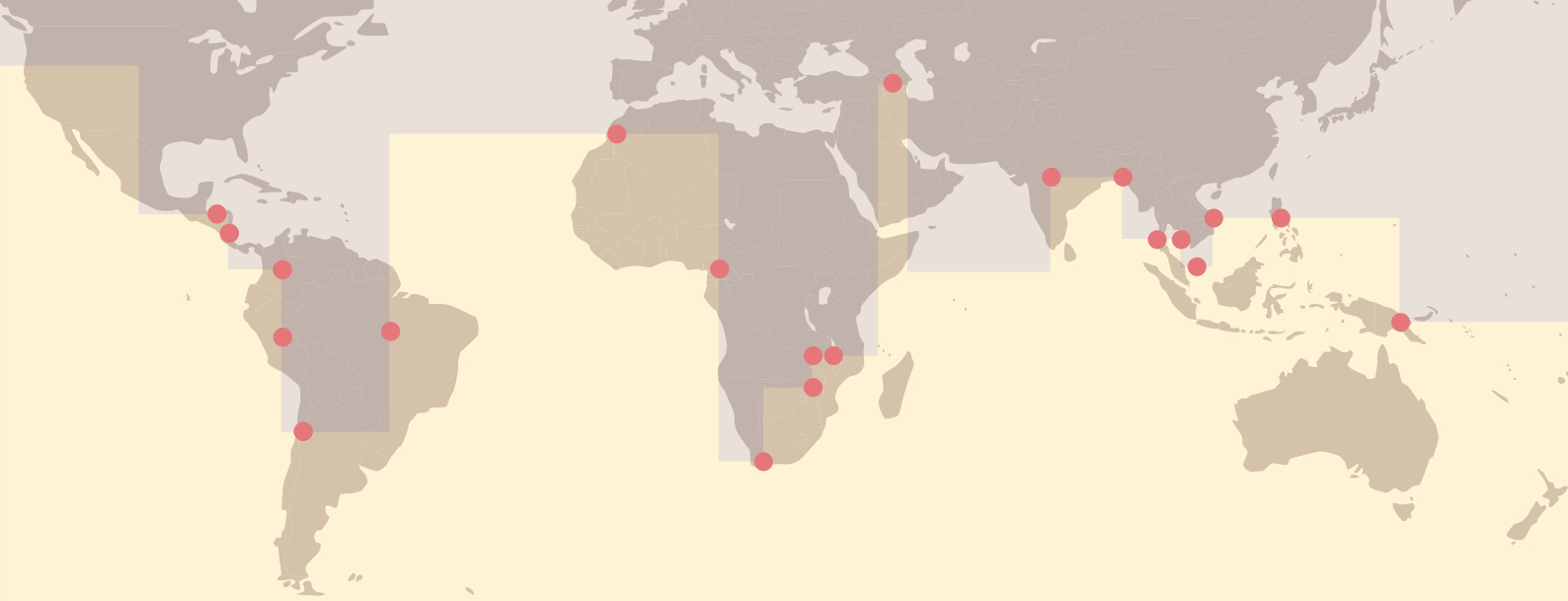

One-Planet Network
Sustainable Lifestyles and Education Programme

Sustainable Ways of Living

Issue Brief Series

One planet live with care

IGES Institute for Global Environmental Strategies

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One-Planet Network
Sustainable Lifestyles and Education Programme

Sustainable Ways of Living
Issue Brief Series

Author: Atsushi Watabe, Gohar Khojayan, Dumisami Chirambo, Lylian Rodríguez Jiménez, Marcelo Matus, Juan Gammarra, Jose Bernardo B. Gochoco III, Katrina Toliongco
Reviewers: Vanessa Timmer

Institute for Global Environmental Strategies (IGES)
2108-11 Kamiyamaguchi, Hayama,
Kanagawa 240-0115 Japan
Tel: +81-46-855-3700
Fax: +81-46-855-3709
E-mail: iges@iges.or.jp

Introduction

In the face of the severe impacts of anthropogenic climate change, recognition of the climate crisis has been largely shared worldwide. The climate crisis is just one symptom of ecological overshoot; humans are currently using more resources and producing more waste than Earth can sustain. Biodiversity loss and resource depletion have also been recognised as urgent issues that need to be addressed.

As everyone contributes to the ever-growing causes of these threats through greenhouse gas and resource use associated with daily practices it is imperative to mitigate the impact of our lives on the environment, economy and society. However, it should be borne in mind that many people globally cannot reliably satisfy their basic needs and are exposed to precarious conditions as regards food, water, housing, energy, health care, education, and employment.

The topics of 'sustainable everyday living' and 'livelihoods' are often considered as being separate or independent, with the former seen as the problem of industrialised societies and the latter as a key concern for 'underdeveloped' societies. However, it is essential to note that many people in prosperous societies are forced to live precarious lives. Moreover, the vulnerability of certain groups of people jeopardises sustainability both at the local and national scale, just as people with insufficient access to basic needs such as energy often create more negative impacts on the environment in order to survive. In addition, sustainable lifestyles and livelihoods are often interlinked, with highly consumptive lifestyles being supported by those whose livelihoods are tied to producing the goods and services therefor, or vulnerable populations recycling materials and living off the waste of wasteful consumption practices of unsustainable lifestyles.

> **"How can we change our ways of living to mitigate negative ecological and social impacts while enabling all of us to lead flourishing lives based on reliable means of living within the Earth's planetary boundaries?"**

Our lives are shaped by an entanglement of elements, such as natural resources and infrastructure that support us, available products and services, and the norms and rules shared in our communities and other social groups. We organise our day-to-day practices consciously and unconsciously guided by these conditions and driven by our needs as individuals, families and social groups.

There is, therefore, no universal path to sustainable living. We need to adopt unique approaches to meet the needs of specific communities and other social groups and to address the barriers and leverage the opportunities surrounding them.

Launched in 2014 and led by the governments of Japan and Sweden, the Sustainable Lifestyles and Education Programme of the One-Planet Network promotes sustainable lifestyles globally. As one of its key initiatives, it supported 24 projects aimed at enabling sustainable lifestyles in cities and communities based on their unique needs and opportunities. By working with projects in different countries, much was learnt about the nature and conditions of sustainable living.

The key elements guiding sustainable living initiatives are as follows:

1 **Focus on both sustainable everyday living and sustainable livelihoods, and their interconnections.** Sustainable ways of living need to cover both of the two interconnected challenges, namely, Responsible Living and Reliable Livelihoods. The former turns our attention to mitigating the negative impacts of our daily lives on the environment and society. The latter addresses the vulnerability of livelihoods and creates secure and reliable means of meeting basic needs in ways that are sustainable. The two issues are inextricably linked and thus should both be addressed as one.

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2 **Reinforce alternative ways of meeting needs that greatly reduce negative environmental and social impacts.** To address the two challenges of sustainable living and livelihoods, it is imperative to revisit the current dominant ways of meeting needs. Assessing the environmental and socioeconomic impacts caused by such practices can help us create alternative means by applying different resources, skills and knowledge. Such alternatives can be developed by effectively using local natural resources, human knowledge, organisations and networks.

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3 **Shift from a focus on individual choice to building inclusive community capacities that are fair.** Sustainable ways of living are not just about orienting our daily lives and individual choices to ensure fewer negative ecological and social impacts, they are created through various processes that foster the capacity of communities and groups to create and share alternative living conditions. Inclusiveness of the processes and fair distribution of the costs and benefits of changes are critical to ensuring the reach and effectiveness of these processes.

The above points are even more pertinent in light of the experience of the COVID-19 pandemic, with its very heavy and often challenging impacts on people. Those who were already in precarious situations are the most severely affected. Moreover, the pandemic has spurred drastic changes in socioeconomic systems, infrastructures, the availability of goods and services, and rules and norms. While these widespread changes in all aspects of our living conditions provide an opportunity to revisit our ways of living, they also exert pressures on vulnerable groups. The pandemic has impacted on many initiatives around the world aimed at achieving sustainable communities and livelihoods. The economies and societies at the national or local level have been severely affected and the regular activities of these initiatives were hindered by the restrictive measures introduced by governments. Looking ahead, efforts to advance sustainable living will need to include recognition of both the risks and opportunities arising from the pandemic, such as the exacerbated vulnerability among the people these initiatives work with and the new rules and norms introduced in response to the pandemic.

In the context of planning, implementing and externally supporting efforts to achieve sustainable living in the post-COVID world, the authors believe it is critical to pay attention to the following three issues:

Issue 1

Leveraging Untapped Resources—Local Renewable Energies as Catalysts for Sustainable Living

Locally available resources such as natural assets, community and group knowledge, and social networks can be fully taken advantage of and enable sustainable living. Among them, identification and utilisation of local renewable energy sources enable local societies to reduce their dependence on external resources and technologies that cause environmental impacts, create viable local economies, and strengthen the knowledge and capacities of local people in collaborating to address sustainability challenges.

Issue 2

Value Creation through Bridging Diverse Types of Knowledge and Skills

Sustainable ways of living require us to create and strengthen alternative ways of meeting needs than those offered by the currently dominant unsustainable provisioning systems. It is very useful to demonstrate the benefits of these alternatives to local people in terms of how they can enhance their lifestyles, in order to ensure their proactive engagement. Local initiatives can bring together different types of resources and knowledge to produce new knowledge with which societies create, as well as enable the sharing of multiple values and benefits. It is also worth considering creating viable models for business or income generation, though these are not necessarily the main foci of local initiatives for sustainable living.

Issue 3

Collaborative Learning & Creation

Initiatives do not usually identify the "right answer" for creating sustainable living conditions right from the beginning of the initiative. To enable alternative means of living to work in real-world contexts, people need to combine different types of knowledge and skills, test them with a sense of perseverance, and learn and adapt. Moreover, unexpected difficulties are always encountered, which is why collaborative learning and co-creation are crucial in efforts toward sustainable living.

This Issue Brief Series aims to provide a concise introduction to the three issues outlined above based on the experiences and learning from the 24 projects. The issues are interrelated but can be read together or separately. For further information on the One-Planet SLE programme and projects, please refer to the synthesis report *Co-creating Sustainable Ways of Living: 24 Stories of on-the-ground Innovations.*

Issue 1

Leveraging Untapped Resources—Local Renewable Energies as Catalysts for Sustainable Living

The challenges of sustainable living are manifold. On a global scale, we must limit the environmental impact of our daily activities, for example, reducing GHG and plastic waste. It is also vital to improve our preparedness for risks such as natural disasters at the local level. Regarding the needs of individuals and families, it is crucial to ensure the security of income, food, clothing, housing, health and education and enable equitable participation in communities and labour markets. Sustainable ways of living can be considered processes that aim to achieve responsible living and reliable livelihoods simultaneously.

To develop the capabilities of local people and groups to achieve these objectives, it is instrumental to re-evaluate and make use of locally available resources and assets. Among many others, renewable energy sources can be a catalyst for local socioeconomic transformation and people's empowerment.

1 In the process of socioeconomic development to date, our lives in cities and communities worldwide have become dependent on resources that cannot be regenerated and must be purchased from external sources, most notably fossil fuels. While external resources such as fossil fuels have had positive effects, such as electrification and improvement of living standards, they have also created vulnerable conditions for many local societies and people's lives.

a. Excessive use of fossil fuels and forest resources harms the local and global environment, such as by polluting the air, soil and water.

b. Dependence on externally purchased energy sources means, in other words, a permanent financial outflow from the region to obtain the resources needed for everyday consumption, production and social activities. In less developed or isolated communities, people do not have access to stable electricity, which poses barriers for them to escape impoverished conditions. This leads to the vulnerability of local economies and households as well as financial constraints on the activities of social groups.

c. Dependence on external resources deprives local individuals and groups of the capacity to collectively confront local challenges such as nature degradation or social vulnerabilities. People in urban, suburban or rural societies are generally excluded from the technical and social aspects of managing energy and other essential resources. In other words, people have been deprived of the opportunity to create alternative conditions for sustainable living.

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2 The use of renewable energy, therefore, provides many benefits for communities and livelihoods.

a. Using renewable energy sources that are available locally reduces dependence on what is bought externally, thus local societies and people can save on their expenditures.

b. These communities can turn the saved costs into stimulating productive activities using local resources, expand opportunities for income generation, and develop more active social activities.

c. Access to locally manageable energy sources often leads to changes in securing other essential needs. For example, people with renewable energy can consider alternative means of producing and delivering food, caring for their health, or learning. Therefore, changes in energy sources realise multiple benefits in everyday consumption and production, such as cost-saving, reduction of environmental impact and strengthened interpersonal ties.

d. Local people and organisations gain experience in managing their energy and other necessary resources. This experience of collaboration can further promote sustainable socioeconomic development and nature conservation.

Many of the SLE projects in the Co-creating Sustainability initiative have identified and use local renewable energy sources.

1 These include local solar photovoltaic, solar thermal, biomass (forest and agricultural waste) and geothermal energies.

a. **Solar photovoltaic:** Several projects, including those in Armenia, India, Peru and Colombia, installed solar photovoltaic panels as part of their activities. The solar panels provided electricity for households and communities, supporting home appliances, production activities, street lighting and other uses.

b. **Solar thermal:** the project in Armenia installed solar water heaters in a kindergarten to support the employees. Later on, the warm water was also used for swimming pools for children. In Colombia, technology was also introduced at development points, demonstrating that it is necessary for the wellbeing of families and to provide hot water for the washing of milking equipment and utensils in dairy farms.

c. **Biomass and biogas:** Projects in rural areas such as those in Colombia and Peru introduced cooking stoves to utilise forest resources. In Colombia, biomass gasification was used specifically as an important technology to take advantage of fibrous waste. The two projects also used biogas digesters for turning animal waste into gas, and for the treatment of gray and black water from human activities and waste. Biodigesters, in addition to producing biogas (methane), are also designed with the objectives of producing high quality liquid fertilizer, improving water cycles in production systems, and harvesting water for use in biogas plants. Renewable energy technologies such as biodigesters decrease pollution, improve the quality of life and generate income.

d. **Geothermal heat:** The project in Chile used geothermal heat to produce vegetables, firewood and other daily necessities.

2 These renewable energy sources have brought the following diverse benefits to local societies:

a. **Cost reduction:** Some of the projects took place in remote areas, far from urban centres, and with limited fossil fuel resources. While the income sources for the local people and organisations are also limited, the costs of the imported

fuels placed a heavy burden on households, groups and public facilities such as schools. Local renewable energy sources for electricity and heat have greatly helped families by reducing the costs of running facilities.

b. **Promotion of production and income generation:** The availability of cheap energy encouraged local people to seek income generation opportunities. In Armenia, solar fruit driers were introduced to households and a community centre. Later, solar panels powered the upgraded irrigation systems to improve farm productivity.

Armenia

Collaboration of community farmers with university students in bringing solar-powered irrigation to local grain fields

Armenia with its abundance of sunny days has a high potential for solar energy use. However, the national economy largely depends on imported fuels, which creates a risk in terms of security of supply as well as affordability problems for customers such as farmers. The Armenian Women for Health and Healthy Environment NGO (AWHHE) and the Energy Center of the University of Chile collaborated with two local universities—the National Polytechnic University Armenia and the Armenian National Agrarian University—in developing and conducting an optional course for master students. The university students worked jointly with the pilot Solak community members and the private solar energy companies to enable irrigation using water pumps powered using solar panels. Unfortunately, due to the COVID-19 pandemic, the universities and the Solak community were under a lockdown situation for a certain time. In response, online options were put into practice, including messages on personal hygiene for farmers and their families. As a result, 11 farmers were able to use a total of 10 hectares of irrigated land to grow lentils and other high value climate resilient grain crops. Thanks to the new closed irrigation system, the loss of water was reduced to 15% from the original 45%. Installation of solar panels resulted in reducing carbon dioxide emissions by almost 14 tons. The farmers used a mobile application to monitor the energy production and noted electricity savings with great satisfaction. The education partnership then expanded, involving more university students and professors, the private sector (solar energy companies), and the local Water User Association. Thus, by linking the university education process with the needs of community members in the supply of low-cost solar-powered irrigation water, the project promoted sustainable, energy-saving and community engagement lifestyles.

c. **Personal and social actions for meeting basic needs:** Renewable energy can facilitate many activities that support the basic needs of people and communities. In Peru, electricity provided by the solar system enabled local people to read at night and be more active in learning. In Armenia, the cost of running schools and kindergartens has fallen, allowing children access to schooling during the winter months. Street lighting was also added which made it possible to go out safely at night and connect with the local community.

d. **Health and environmental benefits:** The project team in Chile piloted the utilisation of geothermal energy in producing high-quality firewood. The pilot results supported dialogs with the local government and firewood producers toward expanding the use of high-quality firewood to mitigate air pollution. The project is also involved in efforts to grow leafy vegetables hydroponically in a geothermally heated greenhouse. If successful, it will substantially benefit the health of local people. In another project in Colombia, biogas from livestock waste is used to reduce pollution loads on local soil and water.

Chile

Use of geothermal energy for mitigating environment and health problems

Being a volcanic country, Chile has high potential for geothermal energy. However, the lack of information on its advantages and high initial cost have prevented broader utilisation of geothermal energy in the country to date. The project team from the University of Chile focused on the direct use of geothermal energy in the form of Geothermal Heat Pumps (GHPs). The project planned to tackle the environmental as well as socioeconomic challenges in the highland regions. For instance, geothermal could contribute to higher quality firewood in the market and mitigate serious air pollution. It could also be used at local farms to provide the energy for leafy vegetable production for delivery to local cities that currently import vegetables from lowland areas at considerable cost. After a delay of several months in coordinating with the local government due to a change in local administration, the project selected a farm near the city which could produce leafy vegetables such as lettuce that can be sold in the city. These facilities brought together local farmers in the experimental production of firewood and vegetables. The local authority also expressed interest in the experiments and explored their potential to contribute to the local economy. Although the consultation process took longer than expected, the geothermal heat pump installed eventually acted as a stimulus for local actors including governments, farmers and firewood producers to explore the possibility of tackling long-standing problems through better utilisation of untapped resources.

3 Renewable energies empower local people to review and change their living conditions. Local communities and people often work together to discover and utilise renewable energy sources. Another substantial effect is the accumulation of joint collaborative experience in communities through undertaking activities, which builds social capital that can support further collaboration.

a. **Renewable energy can bring together local people with critical skills.** In Chile, local farmers collaborated on a geothermal firewood production facility and greenhouse hydroponics. In Peru, women with low literacy rates played a central role in activities.

b. **Renewable energy can engage people who are or have not usually been central to communities.** In Colombia, young people have become interested in introducing new technologies such as photovoltaics and have started collaborating with the middle-aged and older residents, who had previously been the main focus of community activities. The Armenian project facilitated collaboration between engineering students and farmers. Small farmers including the female-headed families with unstable access to credit and irrigation water joined the training sessions on production and marketing and worked with students to install solar-powered irrigation. In Peru, women with low literacy rates played an essential role in the community and have become a driving force for change.

c. **Renewable energy can encourage people to partner more broadly.** In Armenia, solar-thermal dried fruit production was implemented not only by individual farmers but also by women's resource centres. Local leaders shared their experiences and tested techniques with the local population. Awareness of the project's success spread to the surrounding areas, and a training programme set up since has attracted many participants.

Peru

Women leading the use of solar energy in isolated communities

Many native communities in the remote areas of Peru lack electricity, which hinders access to information to diversify income generation sources, and urges them to remain dependent on unsustainable ways of heating and lighting such as using firewood. Access to electricity through simple and effective solutions can lead to unexpected improvements in the lives of native communities and contribute to development of the region. Photovoltaic systems reduce lighting costs, provide the possibility of revenue, support teaching activities through providing light and electricity, and also reduce fire hazards and pollution indoors compared to traditional kerosene-based lighting. This project has demonstrated that solar-electrified villages can be technically and economically self-sufficient.

The project enabled about 56 homes to receive electricity from solar energy. The participating farmers, as well as semi-illiterate women, drawing on their knowledge of natural resources and skills, were able to lead sustainable development within the community. The result was a mitigation in climate change realised through reduced fossil fuel use and halting of unsustainable exploitation of biomass energy resources. The project included initiatives that enabled better access to modern energy-related technologies, as well as introduced solar energy for electrification, pumping, cooking, water heaters and dryers.

In carrying out these activities, with the aim of the communities themselves taking the leading role, committees were set up to develop and plan key activities, including for equipment installation, maintenance and fee collection. Such structures were needed owing to the temporary presence of the project team members. Several illiterate or semi-literate women were selected as leaders of the consultation and management processes through an inclusive process, and now handle maintenance and repairs of the equipment. The project, taken as a whole, can be said to have brought about everlasting changes for the inhabitants of the concerned remote villages, and in effect has changed their lives.

The above cases illustrate how renewable energy sources support local initiatives for sustainable ways of living. The project teams used the acquisition of renewable energy sources to engage with a diverse range of people both within and outside communities, launch collective actions to address specific local challenges related to sustainability, and place local people at the centre of efforts to realise responsible living and reliable livelihoods.

With such benefits in mind, the following points are suggested as key considerations for managing or supporting local actions utilising renewable energy sources.

1 **Renewables provide multifaceted benefits for local ways of living.** Renewable energies are not solely fuel substitutes; they help people reduce costs, enable the production of a wide range of necessities, help to diversify income-generating activities, and can be used for tackling many local sustainability challenges.

2 **People at both the local and external level play vital roles.** Diversifying the use of energy resources requires creativity, knowledge and skills. It is essential to engage local people, since they are familiar with their surroundings and know how they can benefit from alternative energy sources, as well as provide external personnel with the requisite expertise—in terms of knowledge of technologies, funding and management—to realize the full potential of energy resources.

3 **Inclusivity is the key.** The voices of the vulnerable and marginalised populations are instrumental in understanding local sustainability challenges since they can provide a different perspective of the situation and are aware of the value and potential of renewable energy sources to suit their contexts. Furthermore, ensuring the processes involved in the use of renewables are inclusive can lead to self-empowerment as well as increased levels of cooperation, which thus contributes to resilience in local societies. Therefore, any efforts aimed at identifying the use of renewables at the local level should prioritise inclusiveness and collaboration with the most vulnerable and marginalised of society.

One-Planet Network Sustainable Lifestyles and Education Programme
Sustainable Ways of Living Issue Brief Series 1
Leveraging Untapped Resources—Local Renewable Energies as Catalysts for Sustainable Living

by Atsushi Watabe, Gohar Khojayan, Juan Gammarra, and Marcelo Matus

Issue 2

Creating and Sharing Values of Sustainable Living through Bridging Diverse Types of Knowledge and Skills

Local people and groups have the necessary wisdom and capabilities to address local sustainability challenges and contribute to global sustainability. Changing the ways in which they consume and produce can reduce greenhouse gas emissions, resource use, and waste generation. Local groups across the world also protect the natural environment, and plan and implement disaster management measures.

However, such people or groups are sometimes challenged when faced with local and global sustainability challenges. Further, local families and groups are often reluctant to change their modes of production and consumption due to tradition or convention, and even if new behaviours are introduced, sometimes only partially adopt them. In particular, for the very poor, adopting new ways of doing things and participating in collective actions can be seen as a burden or risk.

Therefore, it is essential to clearly demonstrate the benefits and promote 'learning by doing' to help participating families and individuals adopt new patterns while contributing to sustainability at local and global levels.

1 The following values can be presented to local participants and organisations.

a. **Cost reduction in production and consumption:** The economic, social and environmental costs for households and communities in many developing countries are increasing due to factors such as climate change, population growth and the over-exploitation of natural resources. In most cases, certain changes in technologies and lifestyles can improve socio-economic wellbeing and enhance environmental integrity by facilitating cost reductions in production and consumption. A project in Malawi has proposed residential building designs that incorporate alternative building materials and the use of renewable energy technologies (for lighting and water heating) as a strategy to reduce the adverse environmental impacts of urbanisation.

Malawi

Mainstreaming alternative building materials and renewable energy technologies for sustainable housing and cities

Most houses in Malawi's cities are built using bricks from wood-fired kilns. Due to the simple process and technologies involved, bricks are not baked in factories but rather in the localities where red clay soil is available. It requires approximately 500 kg of firewood to produce 1,000 bricks, hence an average house of 50,000 bricks requires about 25 tons of firewood. This means house construction is amongst the major drivers of deforestation and associated loss of biodiversity and ecosystem services in Malawi.

The Malawi project focused on demonstrating the use of alternative building materials and identified stabilised soil bricks and cement blocks as viable alternative sustainable building materials for domestic house construction. Through the project, students and builders involved in the project developed the capacity to mould cement blocks, and the beneficiaries developed an understanding of the tools and competencies that the youth and entrepreneurs needed in order to start cement block moulding businesses as a means of creating local jobs and protecting the environment.

The project was also involved in other activities, such as helping schools and community-based organisations plant and manage trees. There is a need to stress the importance of afforestation and tree planting not only to policymakers but also students and community members, owing to Malawi's annual deforestation rate of 1.6%, one of the highest deforestation rates globally. The project's bottom-up approach to engage and teach community members about the benefits of caring for their trees and also of spreading awareness on the need to use alternative building materials was crucial to its success.

Additionally, the project sought pathways for local institutions and communities to secure incomes from the international carbon trading markets. An international consultant analysed the carbon offsetting potential of some of the project's activities, namely the use of alternative building materials and planting in communities and at schools, and helped the project in identifying buyers of the carbon credits.

In such manners, the project provides a clear demonstration of the links between sound environmental management (reducing resource use) and the creation of green jobs.

b. **Livelihood diversification:** Communal production activities in rural areas can help secure more resilient family livelihoods by diversifying products such as crops, livestock and other foodstuffs. In Colombia, ways to expand income sources beyond agriculture are being explored by introducing ecotourism. Activities in urban areas can also support people in making more resilient livelihoods by, for example, capacitating those working in vulnerable sectors such as waste management, recycling or construction.

c. **Health and environmental improvement:** Introducing new ways of consumption and production can often help reduce local environmental issues such as air and water pollution. In Chile, geothermal energy was used to produce high-quality firewood to help reduce air pollution. Hydroponic farming in geothermally heated greenhouses promotes healthier lifestyles among the local population. In other projects, including the one in Colombia, animal wastes are used to produce biogas, support local energy supply, and reduce water pollution.

   Moreover, people can secure more resilient livelihoods and have some leeway to take an active role in collective actions. Projects such as these can help people secure more resilient livelihoods and take an active role in collective actions, such as protecting the local environment. The project in Peru is a good example of this.

d. **Broader and more proactive engagement with diverse people:** Young people, women and others who have not been involved in local productive and social activities can often play crucial roles in local initiatives. The Peruvian project involved mainly illiterate women, who played a leading role in training and introducing technologies. In the Colombian project, young people led the introduction of new technologies and created a form of online information exchange as a response to the COVID-19 pandemic.

Peru

Strengthening the forest administration of indigenous territories in Amazonian reserves

Native communities have lived in the Amazon rainforest for centuries and have ancestral knowledge of natural reserves comprising large areas of forest biomass. Such knowledge can assist in efforts within Peruvian society toward mitigating climate change and preventing deforestation and forest degradation.

However, it is challenging for them to put their knowledge and skills to use toward such objectives. Most rural native communities in Peru, particularly those in remote areas in the Amazon rainforest, live below the poverty line, and often have insufficient access to basic utilities such as water and electricity and support from local or national governments. Increasing desertification due both to climate change and illegal logging activities devastates the ecosystem as well as livelihoods of these communities, placing them in a highly vulnerable situation. These vulnerable populations are faced with these issues daily and receive minimum public and societal support.

Engaging with indigenous communities such as these, who have extensive knowledge of managing ecosystems, not only improves their living conditions but also greatly contributes to strengthened efforts toward nature conservation and climate change mitigation (Hindou Oumarou, 2016).

The Fondo Verde project seeks to strengthen the technical capacities of indigenous communities to take the lead in forest monitoring and governance based on the concept of influencing local and national policies on climate change and forest management.

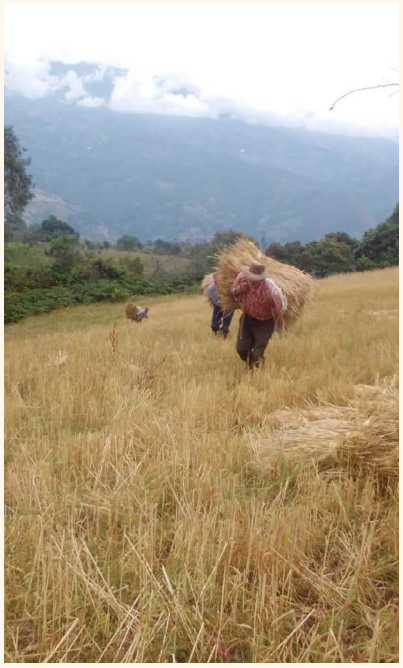
2 Closer evaluation and use of local knowledge and resources is vital to supporting sustainable ways of living.

a. **Underutilised resources:** Local societies often have diverse underutilised resources such as land, nature, and renewable energy sources. Local initiatives can identify, re-evaluate and utilise such resources to enable sustainable means of production and consumption. In Peru, the introduction of eco-stoves fuelled by biomass resources serves to exemplify how the combination of local resources with relatively inexpensive and easily controllable technologies introduced from outside the community can become a new resource supporting local life.

b. **Everyday activities and wisdom:** It is often possible to take advantage of the local knowledge embedded in everyday activities as a way to create valuable means of production and consumption. The production of dried fruit in Armenia is an example of how a local production activity can be refined and successfully turned into a saleable product. In Colombia, activities to reintroduce traditional cereals have provided an opportunity for a wide range of residents to put their knowledge to use towards local production.

Colombia

Recovery of crops through expert-local farmer collaboration



In many of the community-scale projects carried out, local valuable knowledge has been identified and utilised in the process of generating new ideas in collaboration with external experts. In a highland rural community in Colombia, experts from the Foundation for Sustainable Tropical Agricultural Production (UTA) heard Mr. Campo Elias Rodríguez, a farmer from San José de Miranda, comment: "We are the last generation who did not study but sow. Technology and education ended in the field." Such a comment from a local farmer, and also expert, points to both local and global challenges. Although broader and more diverse knowledge is available through generic forms of education, this education does not always serve local living in a meaningful way. To make knowledge serve local sustainable development, societies should pay more attention to how local individuals, families, or groups of people learn, test and apply knowledge in their real-world contexts.

Such perception of the challenges related to unsustainability among the local population inspired the community members and cooperating experts to initiate a project that led to the recovery of traditional wheat and rice, enabling them to reclaim their food sovereignty in integrated agro-ecological systems in Colombia.

Local experts from 21 families acquired and shared knowledge at joint training sessions entitled 'Sustainable Lifestyles Schools' alongside experts from other rural and urban communities. The participants tested and applied technologies for improving their day-to-day production and consumption. They set up Technology Baskets such as for skills for recovering the use of traditional crops, soil improvement and utilising renewable energy. The activity provided many families and communities a sense of hope, through the opportunity to identify and share the new ways of applying their traditional knowledge in order to strengthen the local production systems and local societies.

3 To create alternative patterns of local production and consumption, it is helpful to consider the related aspects such as conventional ways of living, from different angles, such as through combining different forms of wisdom or forming hybrid types of wisdom.

a. **Resources and technologies:** Application of technologies from outside, or re-evaluation of the situation from the perspective of outsiders, is often helpful when considering the possibilities of alternative ways of utilising local resources. Solar panels and water heaters or biomass stoves are typical examples of using simple technologies to take advantage of local resources. The reintroduction of traditional local cereals is another example where local wisdom is better utilised through evaluation from a different angle. The skills and ideas brought in by outsiders, scientists and technicians offer a high level of support, while people in localities should remain the key actors in local activities.

b. **Channels to turn actions into values:** In many projects, the benefits created through activities are locally consumed or sold in local or community markets to generate even more significant economic gains. The project in Malawi is more ambitious and seeks to link community-based tree planting activities with an international credit scheme to secure stable financial support for future activities. Networking with external organisations such as national-scale NGOs or expert groups is desirable for achieving broader value creation, such as through sales at external markets or seeking support from domestic or international schemes. In other words, aspects such as economic gain or other forms of value created need to be relayed within different national and global contexts when seeking broader opportunities for leveraging support, profile, funds or other benefits"].

c. **Assessment, learning and monitoring perspectives:** It is also important to evaluate the value gained from an activity from more than one perspective. The multifaceted benefits of local initiatives such as environmental and health gains, income generation and cost savings, and broader and more active participation of people can be assessed, learned from and shared by formal evaluation processes, such as through assessment of personal sentiment of local people, in order to gauge the efficacy of a certain project. For example, a project in Malaysia involved families, schools and food service sectors with the aim of jointly implementing actions to reduce food waste over a one-month period. Results from the participating students, households and factory employees were: 135.28 kg/day reduction in eight schools, 20.65 kg/day in 32 households and 63 kg/day in 27 food service providers, respectively. They noted that such

achievements also help reduce costs for schools, companies and households while meeting the objectives of food waste reduction in the country.

Armenia

Assessment by university students, farmers and other stakeholders of the environmental and economic aspects of a joint solar energy pilot

In evaluating farmers' needs and designing climate-friendly response actions, the project partners actively involved various stakeholders in considering the various factors that could impact the lives and wellbeing of the Solak community. The university students established a warm rapport with all stakeholders, particularly the farmers, who readily opened up and shared their feelings. The insights gained greatly assisted in arriving at a productive balance between environmental and economic gains, which was the most challenging part of the pilot implementation. While there was general agreement on the major need to use solar energy to irrigate arable non-watered lands located on a slope, different groups of stakeholders prioritized different needs. The farmers required water for irrigation but questioned the flat fee for the service regardless of use of solar energy; representatives from the local Water User Association (WUA) argued that a flat fee could not be avoided; the mayor and administrators questioned the economic value and immediate benefits of the project for the community; and the solar energy companies had reservations related to the technical status of the WUA pumping station. To reach a consensus, the project partners undertook numerous visits to Solak, organized stakeholder discussions and conducted technical evaluations. The community water pumping station was found to be in a very poor condition due to the lack of maintenance since its construction several decades ago. Following lengthy negotiations, the stakeholders agreed that the station should made into a model working environment. The WUA invested in basic renovation of the pumping station and Solak community administration improved the state of the community land around it. Then, the project partners installed pumping equipment and solar panels, which have since been utilized with tangible and lasting benefits to the community stakeholders, and have positively impacted their daily lives. Farmers now have access to monitoring data since they jointly monitor the irrigation systems with the WUA. Moreover, while the government is developing a national programme to modernise irrigation systems, the community, based on its experience, is now able to apply for public funding schemes to scale-up their actions.

In short, local initiatives for sustainable living combine the wisdom, skills, resources and technologies from both local and external sources to create and share benefits that enable responsible living and reliable livelihoods for all in a community. However, the potential values or benefits of projects such as these are not instantaneously or automatically realised among participating communities, and require earnest efforts by the local actors themselves as regards learning, testing, application and evaluation in order to realise desired patterns of living aligned with local contexts.

The following points should be kept in mind in planning, implementing and supporting similar initiatives:

1 **Activities should involve demonstration of the possible financial benefits to households as well as benefits in daily life.** Identification and demonstration of such benefits assist in engaging local people with initiatives at the local level, although securing a profit is not the sole focus of such initiatives. It is also desirable to explore how to ensure these benefits are shared and that related decisions are made by those who are often disadvantaged in such communities as well as families.

2 **Wisdom, technologies and resources have greater impact when combined.** Local initiatives can seek to explore and elicit different points of view in order to revisit the status quo and re-evaluate possible alternatives to conventional production and consumption patterns. To this end, exchanges and experimentation are key actions throughout the process, driven by and including local people and supported by and contributed to by people from outside the community.

3 **Profit/income generation can be considered for self-sustainable initiatives:** At all stages of an initiative, it is worth considering the creation of viable, self-sustainable models of profit-making or income generation to support the activities. These include, for example, introducing products to markets, obtaining grants, and accessing credit schemes.

One-Planet Network Sustainable Lifestyles and Education Programme
Sustainable Ways of Living Issue Brief Series 2
Creating and Sharing Values of Sustainable Living through Bridging Diverse Types of Knowledge and Skills

by Atsushi Watabe, Gohar Khojayan, Dumisami Chirambo, Lylian Rodríguez Jiménez, and Juan Gammarra

Issue 3

Collaborative Learning and Co-creation toward Sustainable Living

Sustainable ways of living' cannot simply be defined as achieving fewer negative impacts through raised awareness or actions on a purely individual level. While such are important, the type, scale and overall effect of the processes differ. Sustainable ways of living in the truest sense are generated and enabled by and within whole communities through collective learning and action. The key to sustainable living lies in the capabilities of local people and groups to continuously revisit the conditions that shape their daily lives, such as natural ecosystems, technology, infrastructure, rules and norms and to create alternative contexts that support responsible living and reliable livelihoods.

It is important to note that the goals for achieving sustainable ways of living or enabling contexts are not always clear from the outset. Those working on the challenge of advancing sustainable living need to continuously re-evaluate current and desired conditions through questions such as What are the challenges that threaten communities and livelihoods? What resources are available to tackle them? and What value can we create for our communities and our lives, and how can we share it?

To continuously revisit these questions and realise fundamental differences in living conditions, those concerned need to continue learning and working together with others with different areas knowledge, skills, concerns, and desires or needs.

Collaborative learning and co-creation are essential drivers in all efforts toward sustainable living. They have two significant benefits:

1 Local initiatives aim to create alternative ways of meeting the needs of communities and families. It is thus imperative to undertake trial and error processes and experiments that combine technologies and resources to find practical alternatives for local production and consumption. Practical solutions often remain unclear until tested, as in the cases of renewable energy introduction which benefitted the daily lives of local communities, or in the improvement of local farm production through using local traditional knowledge.

2 Through the process of trial and error, initiatives are often confronted with unexpected situations; it is not uncommon for cooperation with governments to stall due to changes in political system or to be hampered by disasters or economic fluctuations. Facing such unexpected challenges, participants carrying out local initiatives will need to reconsider their context and capabilities and make modifications or changes as they see fit in order to adapt to the situation in carrying out objectives.

Some of the key lessons involved with collaborative learning and co-creation from the SLE projects are as follows:

1 All projects place collaborative learning and co-creation as core ongoing activities and engage with local key organisations such as local authorities, producers or women's groups, educators and schools, technology providers and NGOs.

2 Physical and virtual spaces were identified or set up to facilitate collaborative learning and co-creation.

a. **Physical venues:** Local community activity centres, meeting rooms in workplaces and government offices, schools, etc., were used for the information exchange among participants, training programmes and dissemination of results.

b. **Experimental sites:** The project in Zimbabwe set up experimental farms in the community, where residents could experiment with different livelihood options, including livestock and crop production, processing and marketing. People gathered at pilot facilities to learn about the benefits of these alternative approaches and develop the skills needed to implement them. Other experiment cases include the solar-powered irrigation and solar-thermal dried fruit production equipment in Armenia, pilot facilities such as biogas generators and solar panels in Colombia and Peru, and geothermal greenhouse cultivation in Chile. These initiatives were used as spaces for collaborative learning and co-creation, for designing alternative ways of meeting needs and revealing and sharing the benefits.

Malawi

Co-creation on construction methods and living experiences in sustainable houses

The project in Malawi has established a model sustainable housing site with four identical dwellings. Some of the innovations incorporated into the dwellings include:

- *Construction with cement blocks (instead of conventional construction using kiln-fired bricks)*
- *Solar photovoltaic panels for electricity; solar water heaters for domestic water heating from renewable energy rather than electricity, charcoal or firewood*
- *Water harvesting from roofs for use in gardening*

The model sustainable housing site was designed to serve two main purposes. First, the houses demonstrated how sustainable houses can be designed. They provided evidence of alternative approaches, training and capacity building to students and builders in terms of construction methods and materials and the utilisation of sustainable technologies.

Second, they served to showcase and raise awareness on sustainable urban lifestyles. People can freely visit the site and ask tenants specific questions about their experiences living in sustainable houses (e.g., visitors can inquire if solar water heaters lead to cost savings on energy bills and provide a reliable service). Through the project implementation based on these approaches, the project has facilitated co-creation of knowledge on sustainable housing design and enabled new values and concepts to be explored with a view to developing various routes that communities can follow towards creating sustainable houses and cities.

Additionally, the design of the low-cost and low-carbon module houses and the concept of sustainable urban lifestyles have a huge potential to engage with low-income groups. The Government of Malawi currently plans to provide 10,000 houses to low-income civil servants such as police officers, immigration department officials and army personnel Part of the project's brief was to utilise an approach enabling low-income families to play an active role through practical inputs in demonstrating sustainable and low-cost urban living.

c. **Virtual spaces:** Online communication in the projects was lively. Especially in view of the COVID-19 pandemic, use was made of WhatsApp and other mobile communication tools to share information with local community members, modify activities, report progress, and share results. In Colombia, the help of young people was crucial to the shift to online—going online was a catalyst for more intergenerational interaction than had ever been experienced in that community previously.

Colombia

Creative Response to the COVID-19 Pandemic

The Colombian project aimed at the recovery of traditional crops organised sessions named Sustainable Lifestyle Schools. The first two sessions took place prior to the pandemic and enabled participants to gain a basic level of knowledge and formulate cooperative relationships.

Then, before the third session, the country became affected by the COVID-19 pandemic. Project teams and community participants responded by viewing the crisis as an opportunity, and began creating communication channels that work in a lockdown situation. They initially used multi-party calls, then created a WhatsApp group. Additionally, they gathered in the virtual community at 5:30 am every Wednesday, following the traditional custom of morning coffee in Colombia. The audio clips of characters created by the coordinators facilitated the participants' weekly learning activities. The knowledge and experiences of the participants were also shared through photos, writings, music and short videos. To date, 3,000 WhatsApp messages and more than 2,000 photographs and videos have been shared both from the community and the UTA team to promote the Technology Baskets.

Each farm was virtually visited, and the visits provided an opportunity to meet all the family members—children, youth, parents and grandparents. Recordings of each activity were edited and turned into a podcast or radio programme format that was returned via WhatsApp to the families involved on a weekly basis. This allowed people to listen to the programme as a family with ease and on their own time schedules. The project also used this medium for developing tutorial videos on Technology Baskets to allow people to choose appropriate technologies themselves. Participating families, including youth, contributed to the creation of written and multimedia contents.

Thus, the creative response to the pandemic provided the project team and participating families the opportunity to cultivate powerful methodological tools for their future actions.

3 Collaborative learning and co-creation provide the following benefits:

a. **Sharing current problems and revealing possible benefits of alternative ways of living:** Starting with local people's concerns such as income and health, participants can gradually dive deeper into the root causes of the issues, including the multiple linkages between these issues and national and global sustainability issues. In this way, people can re-evaluate their capabilities to work together to address both local, regional and global challenges through trial and error in their day-to-day activities.

Philippines

Visualizing the Benefits of Energy Efficiency

The government of the Philippines has undertaken substantial efforts to introduce and accelerate energy efficiency and conservation (EE&C), aimed at building and establishment operators. However, these do not target the general public—a major electricity consumer segment.

The project led by ICLEI Southeast Asia focused on engaging local communities to promote sustainable energy consumption and carbon emissions reduction. The objective was accomplished by improving their access to pertinent information and helping them visualize the benefits of EE&C. A comprehensive understanding of EE&C is one of the keys to transitioning to a sustainable pathway.

In 2020, the COVID-19 pandemic forced the transition of many aspects of life, including sustainability. This led to use of the Internet to reach out to and engage with local communities. The project developed online learning resources, including an online platform that functions as a 'one-stop-shop' resource on EE&C. Dubbed ACCELERATE, the platform is tailored to raise awareness and provide information for residents, businesses and local governments across the Philippines. ACCELERATE contains zero-to-low-cost energy-saving tips for households and small businesses, simplified summaries of national policies on energy and sustainability, and other accessible knowledge products.

Additionally, the project team produced a comic book titled Chuchay Learns to Save Energy, which uses a narrative involving a young girl learning about EE&C in order to convey information on estimated cost savings of each EE&C measure. The project team chose the comic medium to make the topic of energy efficiency more accessible and engaging for local communities, especially youth.

The capacity-building and awareness-raising efforts undertaken by the project contributed to the uptake of EE&C in households across the Philippines. Within about nine months, the ACCELERATE platform had received around 25,000-page visits from almost 17,000 users, while 500 printed copies of the book Chuchay Learns to Save Energy were distributed to the cities of Pasig and Parañaque.

b. **Learning and trying alternative ways of living:** Training programmes in community centres and experimental farms, for example, can enable participants to learn and try various alternative actions, such as using renewable energy sources, improving agricultural production, or bringing their produce to market. They can also review their daily modes of consumption and learn safer practices concerning health and hygiene. Such alternative measures are then tested at their homes or farms, and the results are shared and learned by their peers, leading to real-world knowledge being accumulated in the community.

   The Colombian project introduced a unique method called *Technology Baskets*. Participants select and use the technologies and tools provided by the baskets and share the lessons and tips with the community and maintain them through engagement with a collective fund. Their experience of testing, evaluating, and managing together with their neighbours grows the capacities to work together toward the shared goals of creating more resilient ways of living.

c. **Assessment of achievements and consideration for the way forward:** It is also vital that participants share and review their achievements and failures in order to capitalise on what they have learned. All projects involved measurement of their outcomes and impacts, including greenhouse gas emissions reduction. Many project teams worked on monitoring and evaluation together with local participants, which allowed the participants to capture the impacts of their actions or non-achievements in order to consider the way forward.

   Evaluation can also lead to broader usages or communication of the achievements and lessons. The project in Armenia included the experience of collaboration between local farmers and university students within the university curriculum. Furthermore, farmers, the Water Users Association and the university contributed to fulfilling the requirements of the national regulations and grew capacities in data access, assessment, and collaboration through the joint monitoring. The experience gained will enable them to apply for the national programme to improve their irrigation systems. In such way, collaborative learning and co-creation are essential to generating broader significance from local activities.

Colombia

Use of Technology Baskets to Encourage Selection and Adaptation of Technologies

With the aim of improving local conditions, rural development projects need to include the process of learning and reflecting on local conditions through the proactive engagement of local participants. However, projects are not always successful in bringing about use of the intended technologies or knowledge introduced. Sometimes, the transferred technologies do not correspond to the real needs in terms of local living, or local participants are reluctant to learn about alternative solutions to their daily problems.

The Technology Baskets Approach responds to such challenges. In this approach, local participants play a central role in developing, testing and applying solutions towards achieving sustainable ways of living. Based on the integral visions developed through these collaborative learning processes, experts and local families analyse local needs. The Baskets offer a handful of technologies and knowledge to improve their day-to-day production or consumption, such as in crop or livestock production, use of renewable energy, reuse of wastes and so on, together with the necessary tools or materials. Some technologies are for family use, but others may be communal. Furthermore, participants jointly manage the Baskets and raise funds to sustain and improve the Baskets programme. In this sense, Technology Baskets can also be recognised as Community Baskets, which keep evolving through the continued efforts of local participants and experts to bring in technologies, experience, and funds. The process is accompanied by monitoring and evaluation in order to continually provide more effective means of improving livelihoods and lifestyles and enable upscaling.

In summary, projects intended to enable sustainable ways of living can utilise collaborative learning and co-creation of alternative patterns of production and consumption. The techniques used involve creating both physical and virtual spaces and the processes of joint learning, planning, attempting practical actions that influence day-to-day living, and assessing the associated benefits for further learning.

The following points should be considered in facilitating collaborative learning and co-creation toward successful local initiatives:

1 **Engaging with marginalised people:** Efforts toward responsible lifestyles and reliable livelihoods are desired to engage with marginalised people. The vulnerabilities or disadvantages related to the living conditions of such peoples are deeply entangled with the root causes of unsustainable living of entire communities or cities. Thus, their concerns as well as knowledge on basic needs, natural resources and social networks can greatly assist society in shaping sustainable and reliable forms of living. In other words, a society enabling marginalised people to take part in a transition it is undergoing is one that can offer sustainability and dependability for its people into the future.

2 **Listening attentively:** Local participants and organisations have individual motivations and concerns, which need to be listened to. Particular attention should be paid to people who do not usually have a voice. Cooperation with local key organisations and authorities such as local administrators, educators, community leaders, and leaders of specific groups such as women, farmers or water users is essential for all types of local initiatives. At the same time, networking with external partners is also vital as it can provide critical resources such as technologies, funds and marketing channels, and access to resources beyond the communities concerned.

3 **Creating spaces for collaborative learning:** It is crucial to include both discussions and learning in classrooms and meeting rooms as well as opportunities for local people to participate and create something using their hands in order to avoid one-way communication. It is also important to use virtual technology to foster multidirectional information sharing.

4 **Flexibility and adaptability:** Project activities often do not go as planned. Both implementers and supporters need to learn on the ground and flexibly adapt to ever-changing situations. Uncertainties may pose challenges to implementation but also provide the opportunity to dive deeper into the causes of problems and elaborate on certain activities. Thus, flexibility and adaptability are the keys to successful implementation and knowledge co-creation toward capacitating people to live sustainably.

Philippines

Adapting the Project Implementation in Response to the Pandemic

The ongoing COVID-19 pandemic is an unprecedented global health crisis. Most institutions were caught off-guard and daily life needed to drastically change to contain the virus and minimize loss of life. But while the world has virtually ground to a halt, concerns such as climate change persist and continue to worsen.

In the Philippines, the COVID-19 situation proved to be highly challenging. Project activities were put on hold for months as the partner cities reallocated resources towards pandemic response. Further, strict quarantine protocols limited the project team's mobility and access to the city, which hampered the implementation of scheduled activities.

As a project implementer of a climate change mitigation project focused on information dissemination and face-to-face communication, the project team needed to be able to flexibly adapt to the changing situation created by the pandemic. The project team identified the risks and challenges associated with different scenarios, and modified the planned strategies to lessen the impact of the pandemic on the project. Efforts were made to ensure that outputs were delivered as expected while ensuring the stakeholders remained safe from exposure to COVID-19.

Based on these circumstances, the project employed a shift from in-person workshops and lectures to an online format. Further, the target audience was switched from community-based households to local government staff whom the project's Energy Advocates could more easily and safely interact with. A portion of the budget was also reallocated to purchase personal protective equipment to ensure the health and safety of the Energy Advocates during unavoidable on-the-ground operations.

Despite the above challenges, however, the project fulfilled its goal of educating the intended audience on energy efficiency and conservation almost completely remotely. An online survey was also conducted to measure the potential impacts of the project interventions.

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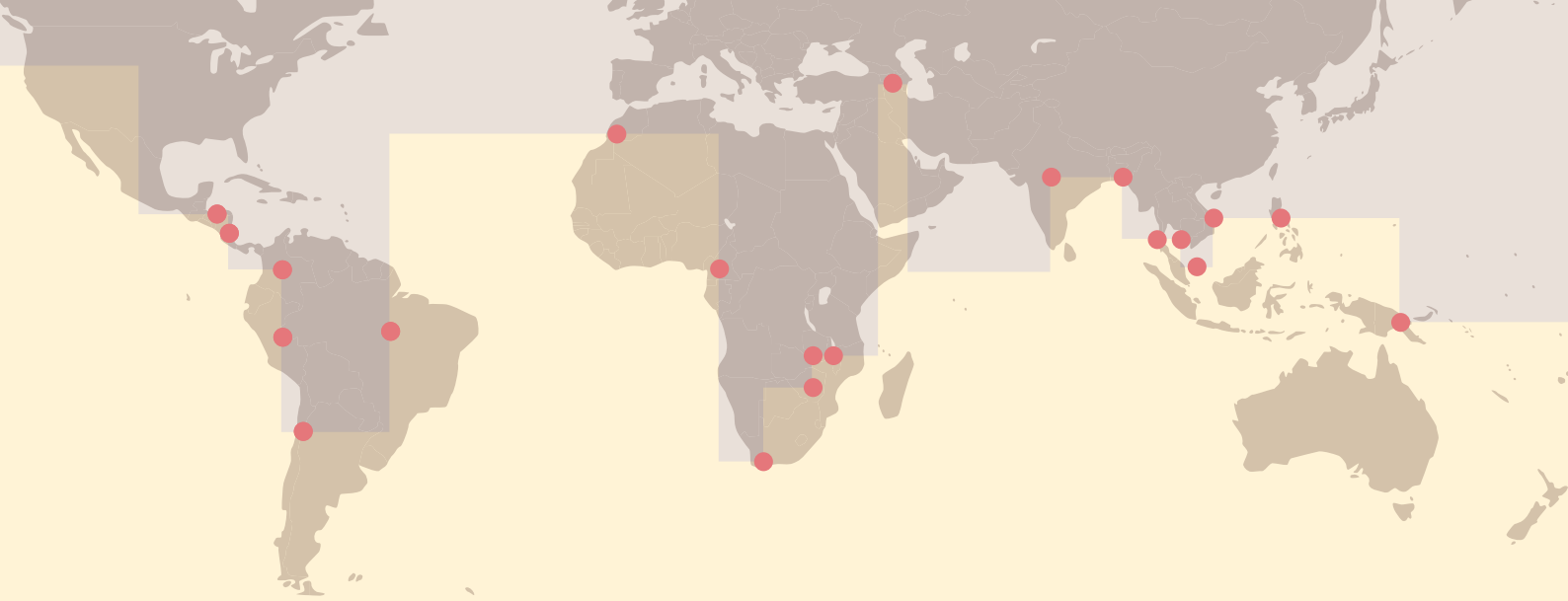

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by Atsushi Watabe, Gohar Khojayan, Dumisami Chirambo, Lylian Rodríguez Jiménez, Marcelo Matus, Juan Gammarra, Jose Bernardo B. Gochoco III, and Katrina Toliongco