

Good Practice

in Action for Climate Empowerment

A compilation and analysis of case studies



United Nations
Framework Convention on
Climate Change



A C E
ACTION FOR CLIMATE
EMPOWERMENT



Key Partner

UNESCO Global Action Programme on
Education for Sustainable Development

CEE

Centre for Environment Education

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Table of Contents

Acknowledgements	i
Partner Institutions	iii
Foreword by UNFCCC	iv
Message by UNESCO	v
Preface by CEE	iv
Acronyms	vii
Executive Summary	x
Introduction	1
Overview Map	3
Case Studies	
1. Barefoot Solar Engineers	5
2. Cool Biz Campaign	7
3. Bus Rapid Transit System	9
4. Eco Driving Programme of the Netherlands	11
5. Energy Efficiency Programme for Brick Producers in Latin America to mitigate Climate Change (EELA)	13
6. Empowering Consumers towards Energy Efficiency	15
7. Klimaträtt (Climate Right) Project	17
8. Water Campaign – Jal Jeevan Hai	19
9. Empowering Vulnerable Rural Communities to Adapt and Mitigate the Impacts of Climate Change in Central Tanzania, Chololo Ecovillage	21
10. Kiribati Adaptation Programme	23
11. Raising Risk Awareness	25
12. Brazilian Observatory of Climate and Health	27
13. Climate Change Adaptation Project in Oasis Zones (PACC-ZO)	29
14. Climate Change Relocation Project	31
15. Terre d'ecole Educational Project	33
16. Awareness on Planting Native Trees for Adapting to Climate Change in Oman	35
17. Landscape Restoration with Local Communities and Global Awareness and Education Campaigns	37
Analysis	39
Conclusions	44
References	45

Partner Institutions

UNESCO Global Action Programme

UNESCO's Global Action Programme (GAP) was launched at the World Conference on Education for Sustainable Development (ESD) in November 2014 in Aichi-Nagoya, Japan. It focuses on generating and scaling up ESD action at all levels and in all areas of education, and in all sustainable development sectors.

To enable strategic focus and foster stakeholder commitment, the GAP has identified five Priority Action Areas: 1) Advancing policy; 2) Transforming learning and training environments; 3) Building capacities of educators and trainers; 4) Empowering and mobilizing youth; and 5) Accelerating sustainable solutions at local level.

UNFCCC Action for Climate Empowerment

In 1992, countries adopted the United Nations Framework Convention on Climate Change (UNFCCC) as a response to the problem of global warming.

The ultimate objective of the Convention is to stabilize greenhouse gas concentrations in the atmosphere at a level that will prevent dangerous human interference with the climate system. The Paris Agreement builds upon the Convention and – for the first time – brings all nations into a common cause to undertake ambitious efforts to combat climate change and adapt to its effects, with enhanced support to assist developing countries to do so. As such, it charts a new course in the global climate effort.

Action for Climate Empowerment (ACE) - which is the new name of Article 6 of the Convention - organizes a variety of events and activities related to climate change education, training, public access to information, public awareness, public participation and international cooperation as well as youth.

CEE

CEE is an internationally acclaimed institution in the field of Environment Education (EE) and Education for Sustainable Development (ESD). It has considerable experience and expertise in addressing its primary mandate of improving public awareness and understanding of the environment with a view to promoting the conservation and sustainable use of nature and natural resources.

Its programmes are facilitated through 40 regional, state and project offices across the country with its headquarters located at Ahmedabad and affiliates in Australia and Germany. Over the past thirty years, CEE has been working in the field of EE and ESD. It has developed innovative programmes, educational material, undertaken demonstration projects and built capacities in the field of environmental education. Recognizing the complexity and vastness of work in the field of ESD, CEE works in partnership with a range of organizations at the national, regional and international level. The strategy is to collaborate with others to build synergies, achieve a multiplier effect, enhance effectiveness and widen the range of programmes.

Cover photo: © flickr.com/Knut-Erik Helle

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Foreword

Climate change is a global challenge unlike any humanity has ever faced. Overcoming this challenge will require action by governments and a broad array of actors and organization across all sectors of our society and economy.

In 2015, governments of the world adopted the Paris Agreement. It entered into force in record time, and is being carried forward by a surge of action by so many.

This is our moment to transform development. To get on a cleaner, more sustainable path, we need everyone to be involved. The world is changing and so must all of us.

The UN Climate Change Action for Climate Empowerment (ACE) initiative equips people for life in a changing world. ACE enables people to be part of the solutions. The program covers education, training, and public awareness and participation. ACE is looking to innovate and scale up successful initiatives that raise climate change awareness and prepare people for the road ahead. This how ACE helps build a low-carbon future that is resilient in the face of impacts.

One look at the projects in this book shows the diverse ways people can bring climate action into their daily lives.

In India, the Jal Jivan Hai education and communication campaign by NABARD reached out to over 100,000 villages to help with water conservation and water efficient technologies. These communities can now better manage their water resources, which helps local farmers.

In Japan, an ongoing education campaign encourages changes in behaviour to reduce emissions. In summer months, the Cool Biz campaign encourages a relaxed dress code and a 28-degree thermostat setting. It successfully shows that small shifts in behaviour by large numbers of people can produce real results.

This publication holds these examples and fifteen more. They are compelling success stories that show what is possible. This compilation of case studies gives valuable insights to the ACE National Focal Points and other policy-makers. Education, awareness raising and public participation hold enormous potential for accelerating climate action. We must tap this potential by empowering all people.

The world must move on climate further, faster, together. This is how we rise to the challenge we face and deliver a better future to every person and the planet we all share.

Patricia Espinosa

Executive Secretary, UNFCCC

Message

Through the various annual United Nations' climate change conferences, UNESCO, UNFCCC, CEE and other partner organizations have sent clear messages that education, awareness-raising and public information play an essential role in increasing the capacity of communities to counter climate change and adapt to its impacts.

The 2030 Agenda for Sustainable Development and the Paris Climate Change Agreement unanimously recognize the importance of education and public awareness in the drive towards sustainable development.

These efforts are key to building an ever-wider circle of informed individuals able to make and take decisions that are crucial for achieving the Sustainable Development Goals and the aims of the Paris Climate Change Agreement. Education, together with awareness-raising and public information to promote behavioural change, will enable communities to sustain efforts across all areas of sustainable development over the years and decades to come.

While concerted international action is crucial to reduce climate change - through stronger international legal mechanisms, greater financial resources and support to green technologies - responses to climate change start with each of us, with the ways in which we think and act, with our attitudes and behaviours.

Around the world, action on climate change has emerged often as a result of, or within, the framework of Education for Sustainable Development (ESD), a cornerstone for tackling climate change. Based on the idea that everyone has a role to play in addressing global challenges, ESD promotes the knowledge, skills, and values we need to take action for a healthier, fairer, more environmentally sustainable society.

The case studies presented here are an important proof and example of how education efforts lead to action which involves people in adapting and contributing to climate change mitigation. We hope they will inspire many more people and associations to follow a similar path.

Alexander Leicht

Chief

Section of Education for Sustainable Development and Global Citizenship, UNESCO

Preface

Education as one of the key components of the strategy for an environment and development strategy was recognized at the UN Conference on the Human Environment, in Stockholm, Sweden in 1972. This was followed by the First Environmental Education Conference at Tbilisi, Georgia in 1977. India recognized the importance of education as part of its strategy for integrating environmental considerations into its development plans. In 1984, as it moved towards forming the Ministry of Environment and Forest it set up the Centre for Environment Education (CEE) as a Centre of Excellence of the Ministry to play a pace setting role in environmental education and to integrate education in the strategies to achieve various development goals.

CEE's work has sought to use education as one of the drivers of change with a number of different stake holders in different development contexts. CEE worked closely with UNESCO during the UN Decade of Education for Sustainable Development (UN DESD). As part of its responsibility in the Global Action Plan (GAP) on ESD, the focus of CEE has been to work with policy makers and the Rio Conventions especially on Climate Change and Biodiversity to ensure that education can play a more significant role in achieving the Sustainable Development Goals.

Working closely with UNFCCC and UNESCO, the current exercise seeks to identify good practice in action towards climate empowerment (ACE). The cases represent a few examples where we feel education has made a significant difference. We hope these will give an impetus to looking more seriously at ACE, by nation states, as a driver of the Paris Accord and a key strategy to achieve their Nationally Determined Commitments (NDCs).

Kartikeya V. Sarabhai

Director, CEE

Acronyms

ACE	Action for Climate Empowerment
ADB	Asian Development Bank
BRTS	Bus Rapid Transit System
CEE	Centre for Environment Education
EELA	Energy Efficiency Program for Brick Producers in Latin America to mitigate Climate Change
ESD	Education for Sustainable Development
FIOCRUZ	Oswaldo Cruz Foundation
GEF	Global Environment Facility
GHG	Greenhouse Gas
KAP	Kiribati Adaptation Program
KJDs	Krishi Jal Doots
NABARD	National Bank for Agriculture and Rural Development
NDCs	Nationally Determined Contributions
PACC-ZO	Climate Change Adaptation Project in Oasis Zones
SDGs	Sustainable Development Goals
UN DESD	United Nations Decade of Education for Sustainable Development
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFCCC	United Nations Framework Convention on Climate Change

Executive Summary

The role of education in supporting climate change mitigation and adaptation has been underestimated for a long time. The critical role of education and training in climate change was given the stamp of approval in the Paris Agreement and its Article 12 which states the role of education in meeting the national climate plans (nationally determined contributions, NDCs). This report presents an analysis of 17 case studies from across the world using education as a powerful catalyst for effective climate action.

The findings of this case study analysis suggest that education has been successful in supporting the achievement of the Paris agenda at many different levels. Firstly because the factors that lead to climate change are very closely connected to individual lifestyles and the current paradigm of development, any change in these factors can only happen with a change in human attitudes and behavior. Education is the only way by which such change can be instigated. Yet the priority accorded to education during international policy discussions remains marginal. Secondly, the achievement of the Paris long-term goals on climate change mitigation and adaptation is imperative if global society is to become sustainable. Awareness, knowledge and skills are required to implement the targets and the roadmaps which were developed for the current NDCs. Future NDCs must include educational components to strengthen their approaches. Thirdly, education under the UNFCCC can and should be discussed in conjunction with Education for Sustainable development and the 2030 Agenda.

Introduction

Countries are yet to identify ways in which the six elements of Article 12 (education, training, public awareness, public participation, public access to information and international cooperation) can foster the implementation of the Paris Agreement by strengthening climate action announced in the Nationally Determined Contributions (NDCs).

The basic hypothesis of this report is that paucity of evidence and the lack of strong arguments that support the causal connection between education and successful climate action continue to hamper a more vibrant debate on education at UNFCCC. Does climate education work? How? What does it cost and will it pay off? How much can the impact be?

Many such doubts remain in the absence of evidence in the form of good case studies. The present report captures 17 case studies from across the globe where climate change education has played a significant part in making a success of climate change mitigation and adaptation projects. The projects in this selection, which is by no means comprehensive, are exemplary in the way they demonstrate the role of education and awareness-raising in mitigation and adaptation as well as loss and damage projects. The case studies showcase a range of educational approaches that have led to smart choices with respect to transportation, energy and life style options, initiatives on leapfrogging from conventional fossil fuel-based energy supplies to renewable energy systems, improvements in water management, health and other initiatives. We see that education has, in these cases, ensured that project objectives and methodology are successfully embedded in communities and society, thereby enabling enduring outcomes.

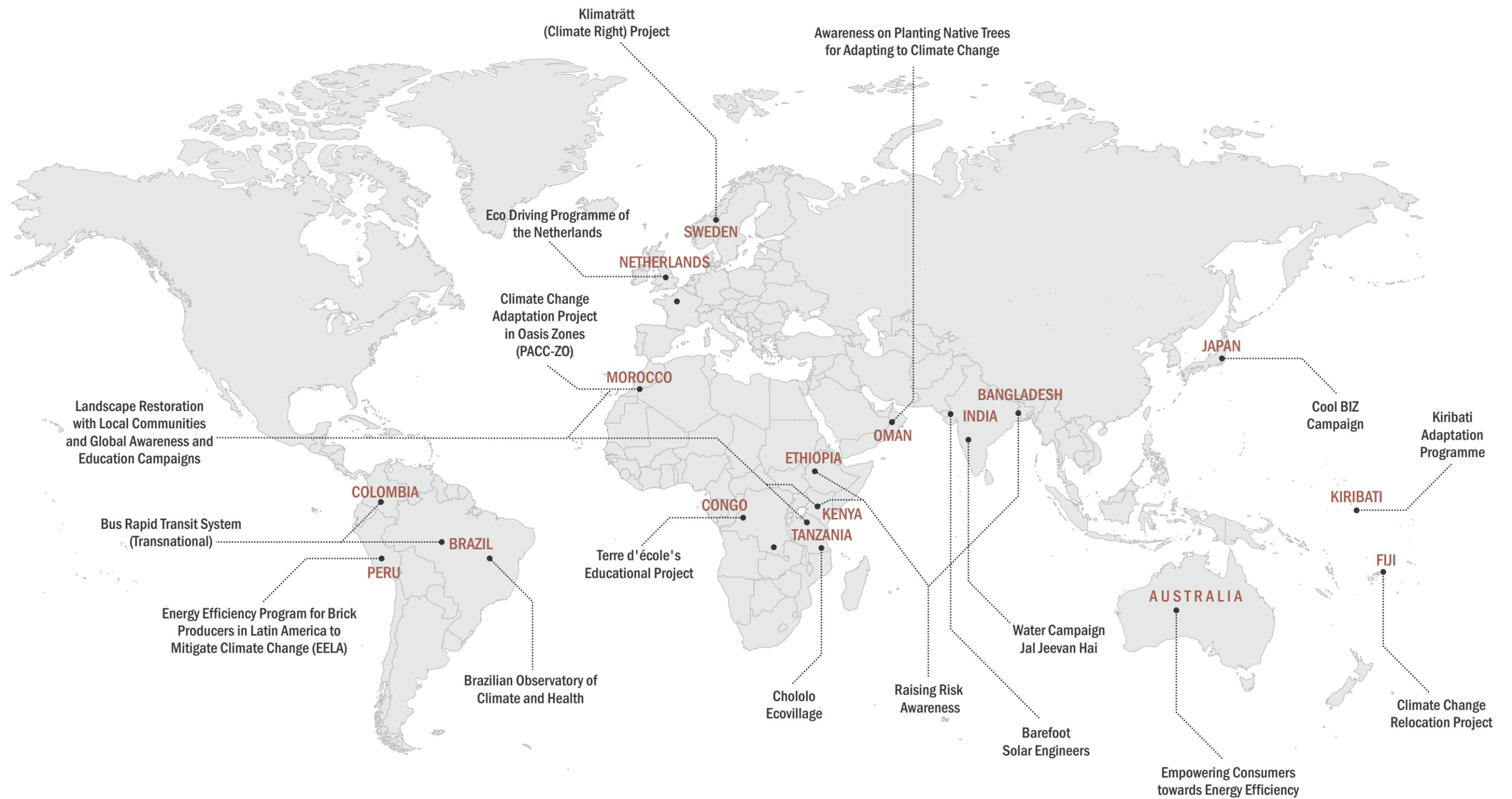
Clearly, Climate Change and Agenda 2030 with its 17 Sustainable Development Goals (SDGs) are tightly interlinked. Non-mitigated climate change would undermine the SDGs while mitigation and adaptation could open the doors to a sustainable future. The UN Decade of Education for Sustainable Development (2005 - 2014) and its follow-up, the Global Action Programme in ESD (GAP), strengthened the case for better understanding and integration of education in all programmes aimed at achieving sustainable development. The emerging education debate at the UNFCCC negotiations should hence forward be held in consonance with the discussion on ESD and the SDGs as explicitly mentioned in SDG 13 on climate change.

With the help of a survey among the Action for Climate Empowerment Focal Points and UNESCO's network of Partners in Education for Sustainable Development, a large number of potential case studies were initially gathered. The criteria set for the selection of the final 17 cases included i) significant mitigation or adaptation impact ii) strong educational component iii) transferability of the core idea to a comparable setting, iv) sustainability of the project and v) data availability. The presentation of the selected case studies in this report focuses on the educational component of the project and makes no judgement about the other aspects.

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development, any change in these factors can only happen with a change in human attitudes and behaviour. Education is the only way by which such change can be instigated. Yet the priority accorded to education during international policy discussions remains marginal. Secondly, the achievement of the Paris long-term goals on climate change mitigation and adaptation is imperative if global society is to become sustainable. Awareness, knowledge and skills are required to implement the targets and the roadmaps which were developed for the current NDCs. Future NDCs must include educational components to strengthen their approaches. Thirdly, education under the UNFCCC can and should be discussed in conjunction with Education for Sustainable Development and Education 2030 Agenda.

OVERVIEW MAP



Barefoot Solar Engineers



Initiative of: Barefoot College*, India
Year: 1980s – present
Sector: Renewable Energy
Scale: Regional / International

Addressing the issue of energy poverty and climate change, Barefoot College, a non-governmental organization in India is empowering semi-literate and unschooled women from remote villages of least developed and developing countries to harness solar energy. These women who undergo a six month training programme, are able to build, maintain and repair solar products such as lanterns, lamps, parabolic cookers and water heaters. These solar engineers using their skills and products fulfil the energy needs of their communities and also earn a livelihood in this way.

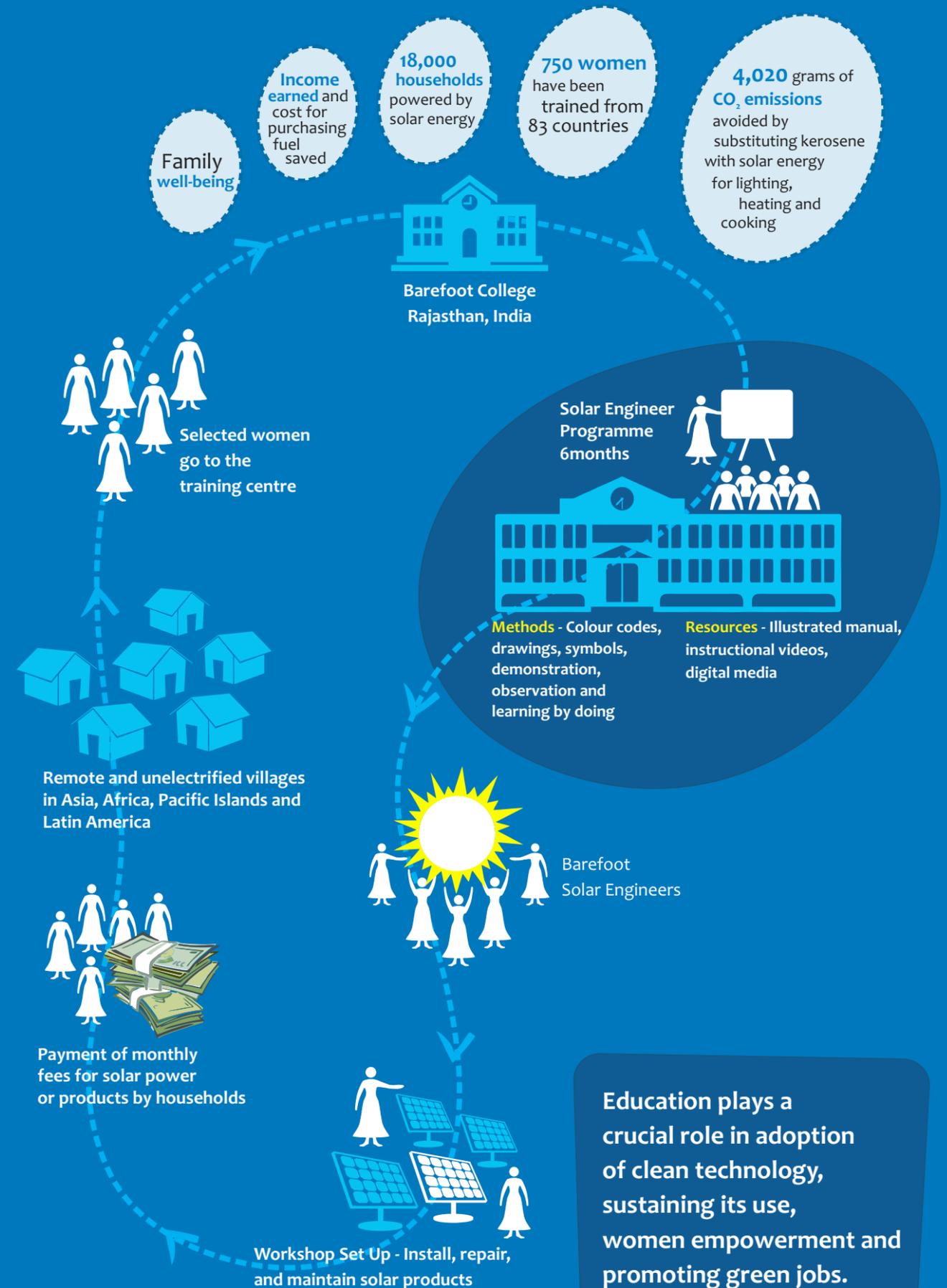
The Solar Engineer Programme trains women through a hands-on-learning approach with the support of a trainer who facilitates the learning process and helps overcoming the language barrier.



Flickr/UN Women/Gaganjit Singh



* Website: <https://www.barefootcollege.org/>



Education plays a crucial role in adoption of clean technology, sustaining its use, women empowerment and promoting green jobs.

Cool Biz Campaign



Initiative of: Ministry of Environment, Japan*
Year: 2005 - Present
Sector: Clothing and Energy Efficiency
Scale: National

Reducing greenhouse gas emissions does not need to rely primarily on the adoption of modern efficient technologies. It can also be achieved through simple and effective communication campaigns that can effect behaviour change through linking everyday decision making with positive climate action.

Japan has been implementing a series of national informal climate action campaigns for over a decade. These campaigns are part of Japan's national policies and plans to reduce greenhouse gas emissions through global warming countermeasures. The objective of the campaign is to change individual attitudes, behaviour and lifestyle relating to energy consumption by increasing awareness. One such campaign that has received global recognition is the Cool Biz Campaign.

The Cool Biz Campaign was initiated in 2005 with the objective of reducing energy consumption due to over cooling by encouraging people to dress more casually (without tie and jackets) to work and setting the thermostat at 28°C. The success of the campaign can be attributed to the fact that it targeted people's need for comfort through the simple recommendation of relaxing the dress code during summer and raising ambient temperature levels thus resulting in considerable energy saving. Cool Biz and Super Cool Biz Campaign is launched every year from May to September and is now a part of the recent national "COOL CHOICE" campaign.



Wikimedia commons/Nesnad

* Website: <https://www.env.go.jp/en/focus/jeq/issue/vol03/feature.html>



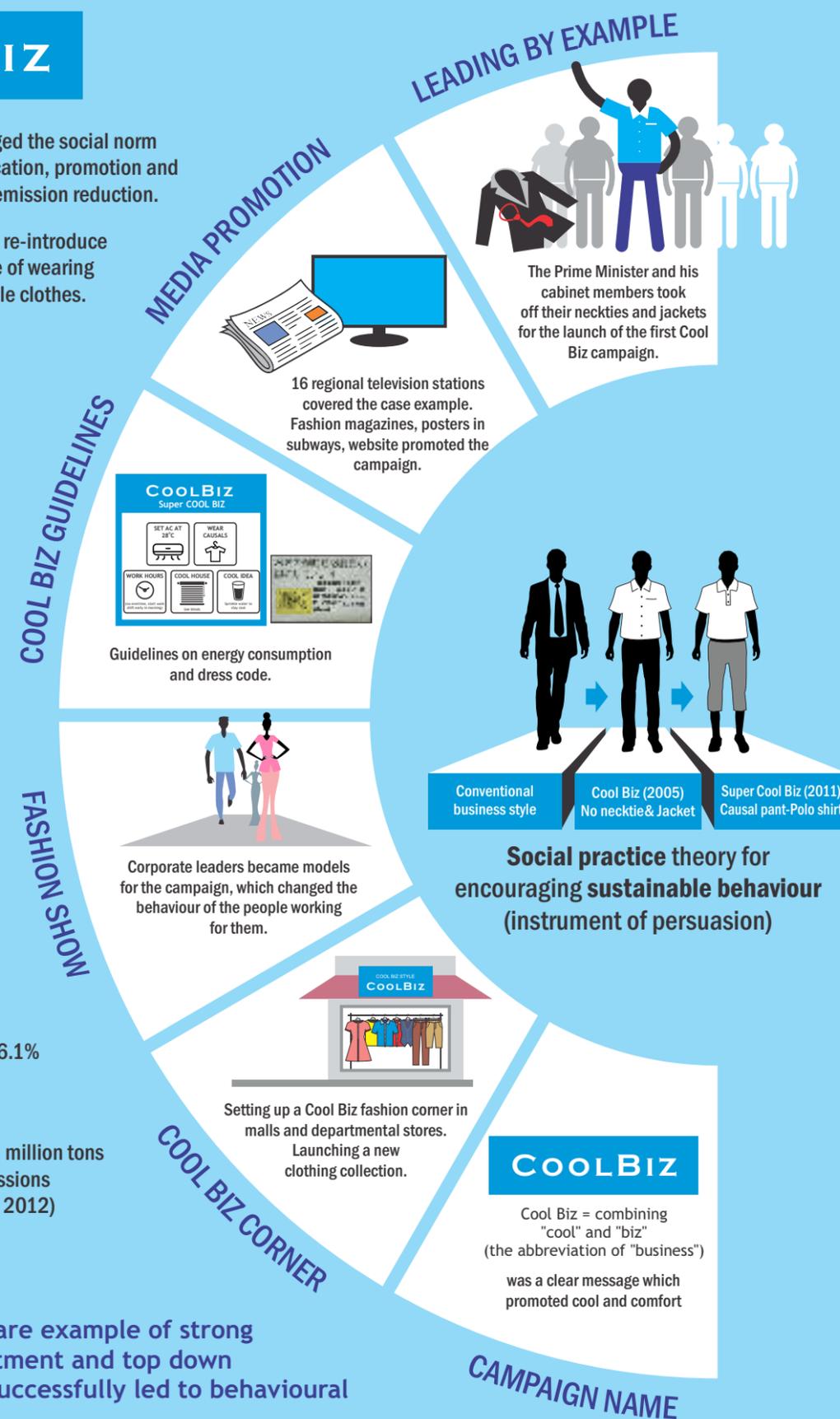
The "COOL CHOICE" campaign was initiated in 2015, to meet the mid-term emission reduction target by uniting industry, academia, the private sector and consumers through a top down approach. The campaign promotes smart choices or easy choices that directly involve the individual in global warming countermeasures through sector specific campaigns.

Suit and tie is a business norm in Japan. Air conditioners, therefore, are set at very low temperature resulting in energy inefficiency, causing higher Greenhouse Gas (GHG) emissions.

COOLBIZ

Cool Biz Campaign challenged the social norm through effective communication, promotion and other educational tools for emission reduction.

The campaign action was to re-introduce the earlier common practice of wearing weather-friendly, comfortable clothes.



Outreach to 96.1% of population

More than 2.2 million tons of carbon emissions avoided (as of 2012)

The campaign is a rare example of strong government commitment and top down approach that has successfully led to behavioural change.

Bus Rapid Transit System



Initiative of: Local Governments around the world*

Year: 1970s - present

Sector: Transportation

Scale: Global

The Bus Rapid Transit System (BRTS) has gained popularity as an efficient mass transportation option. Features like dedicated bus lanes, high capacity buses, level boarding, and real-time passenger information help make the BRTS an attractive mode of public transport. TransMilenio, the BRT in Bogota, Colombia, is possibly the largest BRTS in the world. From the outset of the project, local government invested in public engagement and outreach around civic culture as well as non-motorized transport, cycle lanes and bus ways to foster a favourable environment for the implementation of the BRTS.

Various organizations, transportation consultants and the mayors of Bogota and Curitiba have helped in advancement and transnational spread of the BRTS model. Methods include exposure visits for decision-makers to Bogota or other cities with successful BRTs, and peer to peer learning platforms for government officials and transportation professionals. Delegations from over 20 countries have visited Colombia to learn about BRTS. These actors play a crucial role in coding learnings from BRTS implementation projects in the form of Planning Guides and BRT rating standards to assist in new developments.

It is well-recognized within the BRT community of practice, that public outreach, branding and marketing of the system are a critical component. Cities like Johannesburg in South Africa and Pune in India engaged stakeholders through workshops and consultations in planning and implementation process of BRTS system. For example, Lagos in Nigeria, Jakarta in Indonesia, Ahmedabad, Pune and Hubli Dharwad in India have used print and electronic media and engaged local ambassadors and media managers to promote BRTS and encourage commuters to use new features of the system.

LOCAL ADVOCACY AND DEMONSTRATION

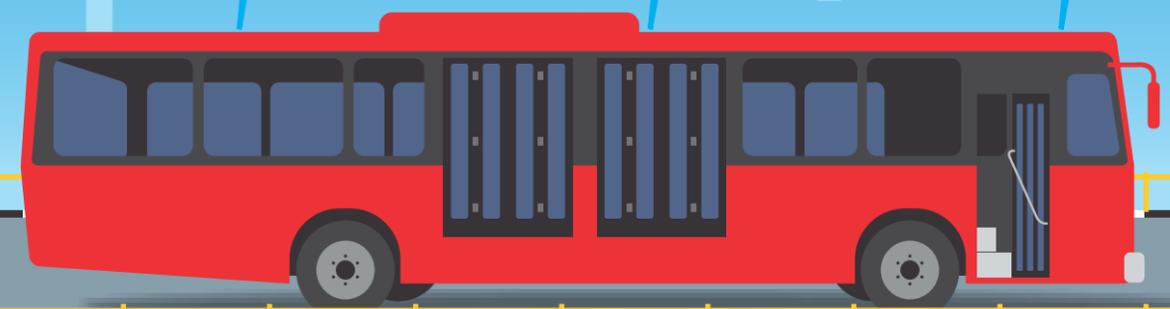
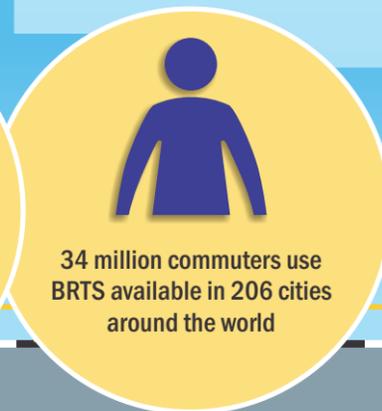
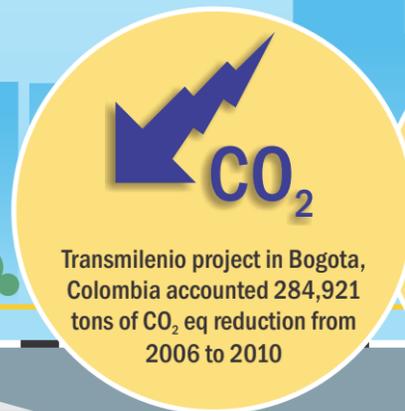
Promotion of BRTS model by local governments and experiential learning through field visits/study tours helped inform decision makers for widespread adoption of the BRTS model

COLLABORATIVE LEARNING

Collaboration among transnational community of practice (institutions, researchers and networks) promoted peer to peer learning which facilitated knowledge sharing and eventually improved the BRTS model and developed guiding tools for decision makers

BRANDING, MARKETING, COMMUNICATION AND OUTREACH

Awareness raising through various medium is a standard component of BRT system that helped generating acceptance of BRTS and encouraging its use



Eco driving programme Het Nieuwe Rijden (The New Driving) of the Netherlands



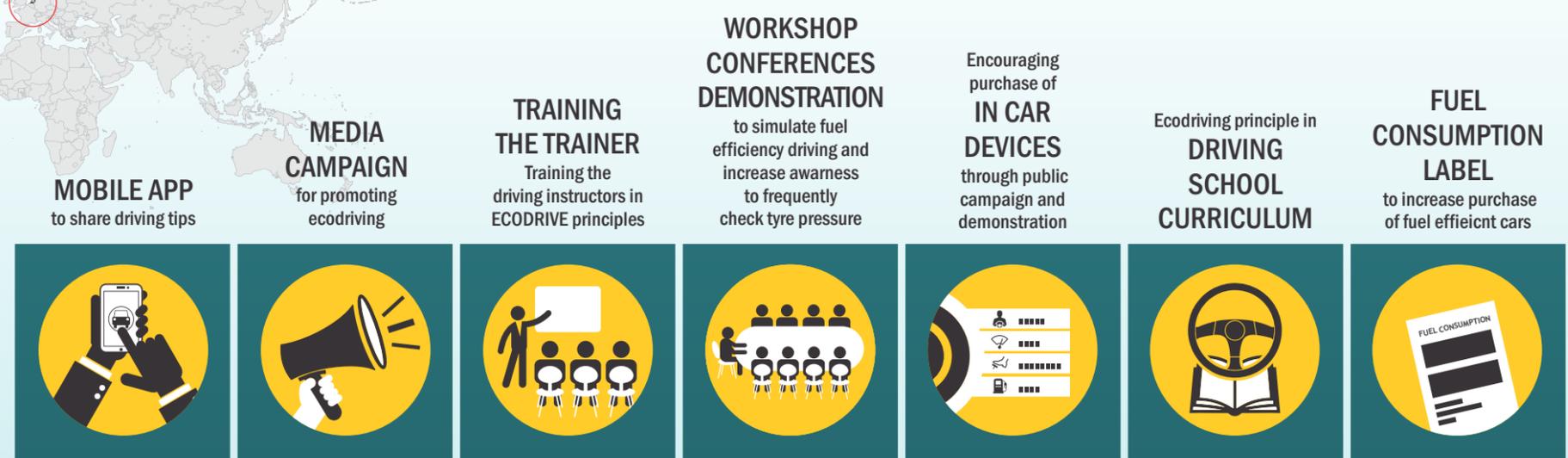
Initiative of: Ministry of Transport, Government of the Netherlands and SenterNovem*
Year: 1999-2010
Sector: Transport
Scale: National

The climate change mitigation strategy for the transport sector in the Netherlands mainly involves promoting more fuel-efficient vehicles and the use of clean fuels and traffic strategies, but overlooks driving behaviour. Changes in Individual travel behaviour can also help in reducing CO₂ emissions through adopting fuel efficient driving habits. A focus on creating driving habits that promote energy conscious behaviour among members of the public is generally classified under the concept of 'Ecodriving'.

Many countries across the globe are promoting ecodriving through campaigns, promotional events, and other educational tools. However, the National ECODRIVE programme "Het Nieuwe

Rijden" of Netherland is the oldest, most successful long term programme for promoting fuel-efficient driving behaviour. The programme formed part of the national climate change policy designed to achieve the target set under the Kyoto Protocol.

ECODRIVE focused on creating the necessary conditions and organisational structures to facilitate a more sustainable driving style in partnership with 20 consumer and retail organisations. The programme prompted individual drivers, professional drivers, and fleet owners to shift towards more energy efficient driving habits and purchase behaviour through employing a strong educational strategy.



Education for promoting fuel efficient driving behaviour



Emission reduction around 15% (0.3-0.6 Mton/year)



90% of driving instructors received eco drive training. More than 35% drivers are applying new driving behavior.

Ecodriving style for fuel saving behavior



TYRE PRESSURE STEADY SPEED ACCELERATE SMOOTHLY CORRECT GEAR ANTICIPATE TRAFFIC

* Website: <http://hetnieuwerijden.nl/>

TV ad campaign with a popular celebrity promoting eco-friendly driving behaviour.

Since 2005, driving instructors and examiners are being trained in eco-driving, and energy-conscious driving has been included as one of the 13 criteria for the practical and theory driving license exams.

Several demonstrations, workshops and conferences were conducted to increase awareness on fuel efficient driving.



Fuel consumption saved by 20%



Improved road safety

Energy Efficiency Program for Brick Producers in Latin America to Mitigate Climate Change (EELA)



Initiative of: Swiss cooperation programme*
Implemented by: Swisscontact
Year: 2010-2017 (Three phases)
Sector: Energy Efficiency and the brick industry
Scale: Regional (Mexico, Peru, Bolivia, Ecuador, Colombia, Brazil and Argentina)

Around 30-50% of the total brick output in Latin America is produced by its energy inefficient artisanal brick manufacturing sector. The Energy Efficiency in artisanal brick kilns in Latin America to mitigate climate change (EELA) programme was initiated in the year 2010 with an objective to mitigate greenhouse gas emissions from these artisanal brick kilns and improve the quality of life of brick producers. The programme not only introduced modern and clean technology for brick production but also convinced the people to adopt these technologies. The success of the EELA programme was built on the experience of the pilot project in San Geronimo Peru which acts as a demonstration site and learning school for the other brick clusters.

The EELA programme also adopts a systematic inclusive market approach for effective communication across all the actors in the brick industry by

- Facilitating contact between the machinery suppliers and brick producers
- Including the brick producers in the inclusive system for better access to technology markets
- Fostering access to financial agents who grant loans to purchase machinery and build better kilns, thereby improving energy efficiency in the brick production process



©Swisscontact, Swiss Foundation for technical cooperation



* Website: <http://www.redladrilleras.net/>

850 thousand tons of CO₂ emission per year



Artisanal brick production process uses energy inefficient technology and dirty fuel

Lacks dome and insulation in the chamber increases the firing time and uses lot of fuel causing higher greenhouse gas emissions

Making people Believe in the Technologies through Education

MODEL PRODUCER FOR CHANGE

Training the president of the brick producers association "Sucso Aucaylle" in Peru on how to use a fan to stoke fire, clean fuel and other improved practices making other brick producers believe in the change and follow him

SEEING IS BELIEVING

Setting up a clean energy efficient kiln next to their kiln and let people see the difference

KNOWLEDGE EXCHANGE AND TRAINING

Training on good production practices as a practical demonstration together with the technology provider

Brick Producer Information Network (Manuals, demonstrative videos for dissemination of technology, 143 regional and national level exchange activity)

Brick producers, Machinery suppliers, Financial agents

Market approach for scale up and communication among key actors of brick value chain



Reduction of greenhouse gas emission by 30%



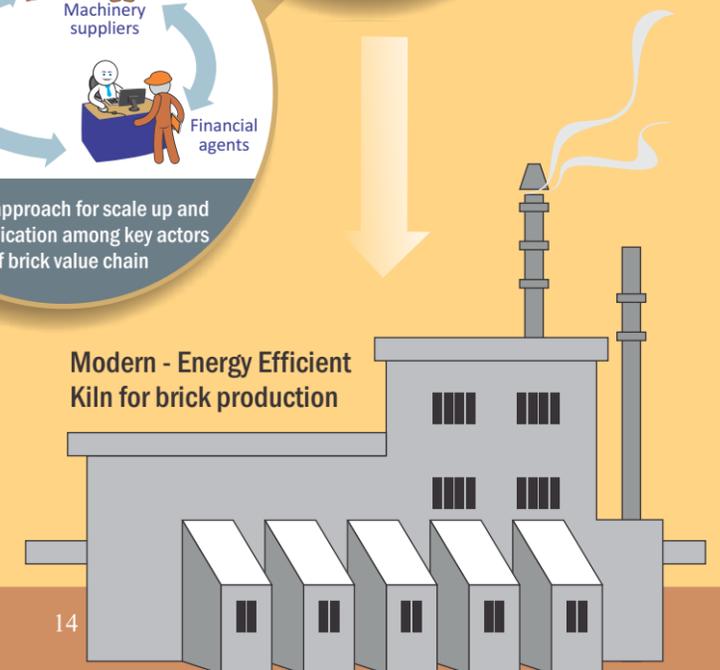
Increase in income of brick producer by 10% (\$ 10 million dollar)



110 technology suppliers



National policies on air pollution levels from the brick sector



Empowering Consumers towards Energy Efficiency



Initiative of: AGL Energy Limited
Year: 2013 – present
Sector: Energy
Scale: National

Energy efficiency is a cost-effective climate change mitigation strategy for the building sector. 'My AGL IQ' is an online energy monitoring tool which educates and informs the consumer to better manage their energy consumption. It provides data on electricity and gas consumption thereby enabling customers to track their individual energy use while comparing it with similar sized households. The data is presented in the form of simple visuals such as graphs and charts making it easily comprehensible to consumers. Consumers are also provided with information on their own prior pattern of energy use on a seasonal basis through bar charts that compare their consumption in the current year against the same period of the previous year.

The other key components which make this tool effective include provision of an option for setting personal energy saving action plans, making possible future projections of energy use, the setting of consumption thresholds as well as suggestions relating to energy saving measures including information on the range of energy saving product options that are available. Studies suggest that feedback given in the form of steps to save energy has proved to be effective in encouraging consumers to take action and retain this behavioural change compared to just relying on in-house display devices that merely provide current energy consumption data.

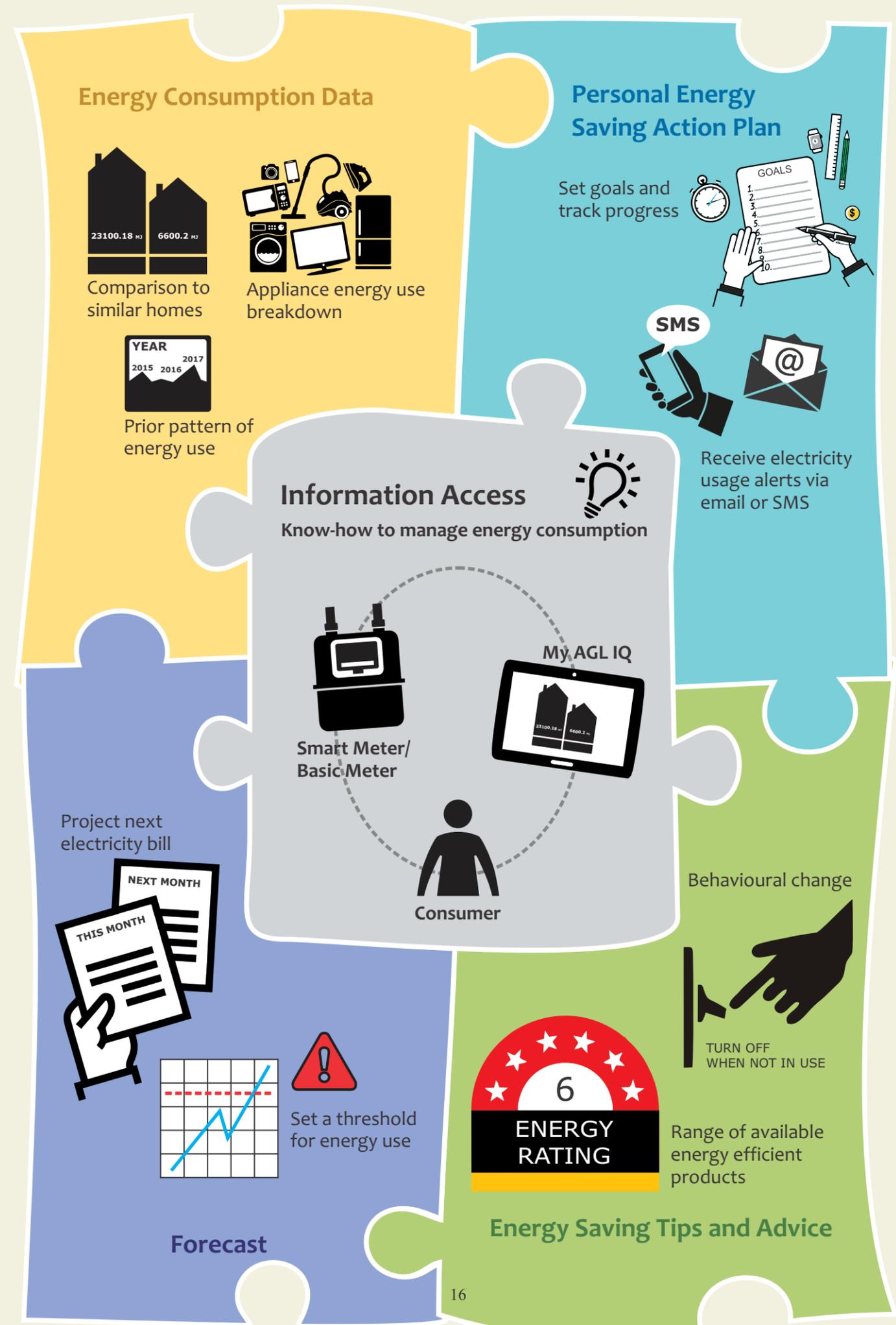


AGL through a pilot tested My AGL IQ with 2000 employees and currently, there are more than 50,000 users

This tool can help families to cut their electricity bill by 10 percent

Literature review suggests that information provided on electricity consumption using display devices can help reduce consumption by 3 to 5 percent

* Website: <https://www.agl.com.au/residential/why-choose-agl/my-agl-iq---to-remove/features>



Klimaträtt (Climate Right) Project



- Initiative of:** ICA and Uppsalahem, Sweden's largest grocery retailer and one of the largest housing companies, respectively*
- Partners:** WWF/Världsnaturfonden, Chalmers, ICA Bank, ICA Supermarket Torgkassen, Sunfleet, UL, Automile, Uppsala municipality, Energimolnet and Swedish innovation agency VINNOVA
- Year:** 2015, planning for up-scaling and replicating the project
- Sector:** Cross-sectoral (individual carbon footprint)
- Scale:** Local/ regional

Any attempt to reduce the carbon footprint of a country needs to begin with the individual. In order to motivate individuals to make smart consumption choices, they need to be made aware of the environmental repercussions of their consumption patterns and be provided with the necessary guidance to make the right choice. The Klimaträtt (climate just or climate right) project was initiated with the aim to increase the consumers' understanding of their personal carbon footprint and guide them towards simple and feasible alternatives.

A major component of the project is a mobile app which helps consumers measure their climate footprint and lets them set personal targets for reducing their footprint while regularly monitoring their progress. Several commonly used commercial entities support this app by providing feedback for calculating a consumer's footprint based on their purchases and other payments. In March 2015, 32 residents of one of Uppsalahem's apartment buildings enrolled to test the Climate Right app for six months, receiving a variety of climate-friendly services and offers, and learning how to limit their climate impact.

Due to the positive response to the pilot project, the project team is exploring possibilities of scaling up the initiative with additional categories, companies and stakeholders. Climate Right is a simple, innovative and easily replicable example of how businesses and consumers can work together to make consumption and production more climate-friendly or climate-conscience. The project also proves that increased awareness about every-day individual choices can have a significant impact on carbon footprints and can inspire a whole community to live more sustainably.



* Website: <http://klimatratt.se/>

Inspiring climate-friendly living with a mobile app



32 Participants



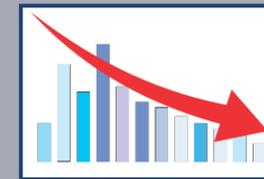
6 Months



Klimaträtt App

App calculates user's climate footprint and displays their progress to reduce this footprint in major consumption areas— household, food, and transportation*

*air travel not included due to insufficient data

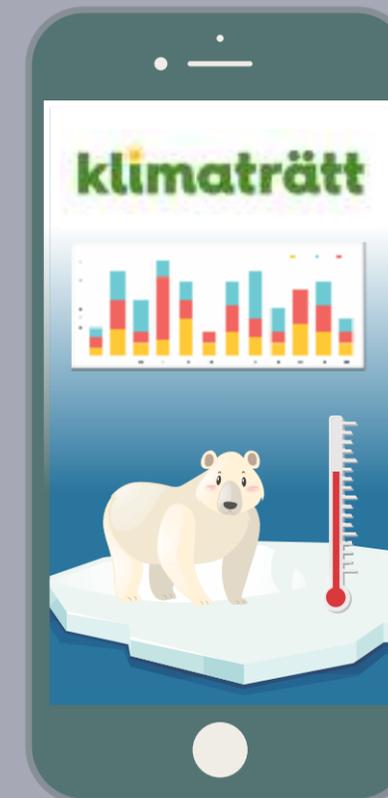


Average emission
reduced by 31%

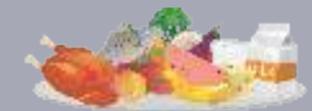
Household



Emissions
reduced by 32%



Food



Emissions
reduced
by 10%

Transportation



Emissions
reduced by 58%

Participants were also provided information material and workshops, including:

- Climate-smart healthy recipes
- Food safari of climate-friendly products in the local supermarket
- Memberships to car sharing service
- Workshops on urban gardening and climate friendly cooking
- Newsletters with advice on reducing personal climate footprint

Water Campaign Jal Jeevan Hai



Initiative of: National Bank for Agriculture and Rural Development*
Year: 2017-present
Sector: Water conservation and Sustainable Agriculture
Scale: National

To create awareness among rural communities regarding water conservation and water efficient technologies, NABARD launched a major education and communication campaign called Jal Jivan Hai or Water for Life, in partnership with the Centre for Environment Education. The campaign reached out to over a hundred thousand villages spread across 21 states of the country with the help of a specially trained cadre of youth called Krishi Jal Doots (KJD). Along with training, KJDs were provided with a kit containing educational resource materials to conduct a 'day in a village' campaign module. They were also provided with a detailed manual on how to conduct the campaign. KJDs thus acted as facilitators and implementers of the campaign at the local level.

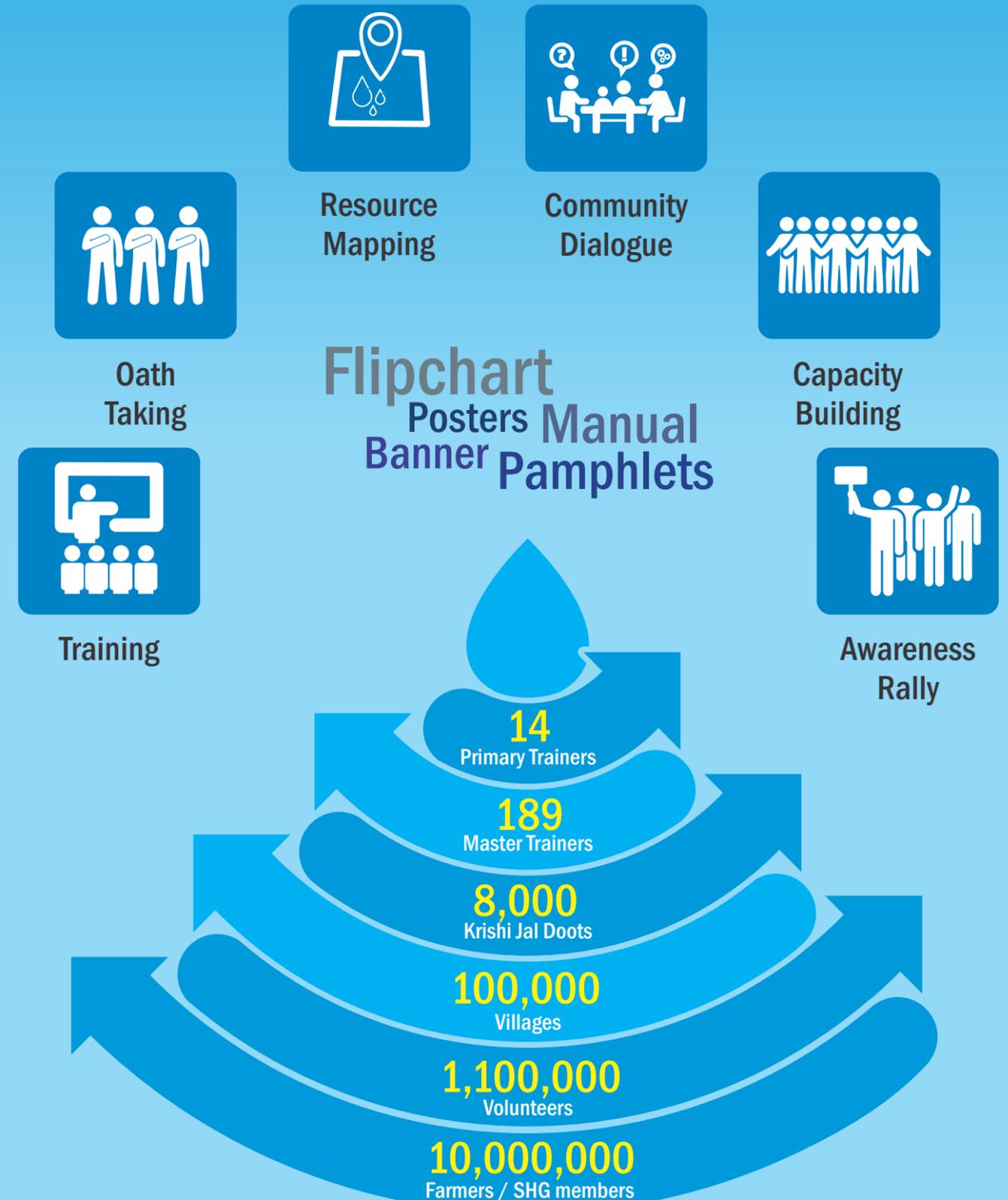
The campaign designed and developed educational material to promote public awareness of the need for water conservation. The campaign adopted a cascading approach to enable the flow of knowledge to the grassroots. Training was provided to the over 200 Master Trainers identified by NABARD, who in turn trained over 8000 KJDs, developed the Master Trainers training manual and the 'A day in a village' campaign module. The KJD worked in pairs to cover a hundred thousand villages. This campaign not only created awareness but equipped village communities to prepare participatory water resource maps of their village. The KJD also helped them develop a list of action points to further augment the village water resources through various means such as use of innovative, water efficient technologies and practices in farming, renovation of existing water harvesting structure, enhancing the potential of storage bodies, and creating new structures.



Centre for Environment Education

* Website: <https://www.nabard.org/content1.aspx?id=646&catid=8&mid=285>

Cascading Education Model for Climate Resilient Agriculture



Empowering Vulnerable Rural Communities to Adapt and Mitigate the Impacts of Climate Change in Central Tanzania Chololo Ecovillage

Initiative of: Institute of Rural Development Planning*

Partners: Dodoma Municipal Council, Dodoma Environment Network, Hombolo Agricultural Research Institute, Maji na Maendeleo Dodoma, Tanzania Organic Agriculture Movement

Year: 2011 – 2014

Scale: Local

The Chololo Ecovillage is a climate change adaptation and mitigation project which used a holistic and integrated approach to address the needs of a rural community. It took into consideration key local concerns including drought affected rain fed agriculture, availability of fuel and fodder, land degradation, shortage of food and water, diseases and pest attacks.

Examples of the range and diversity of solutions implemented include adoption of ecological agricultural technologies such as intercropping, crop rotation and farmyard manuring; soil and water conservation measures; improved livestock management and disease control; diversification of livelihood to include leather tanning, bee keeping, fish farming; improving goat rearing and chicken keeping practices; rainwater harvesting; solar powered village water supply; tree planting and nursery management; use of energy efficient stoves and biogas digesters; automatic weather station sharing information and land use planning.

Education played a crucial role in this project by enabling the local communities to identify, test and adopt appropriate technologies, learn new skills and practice alternative livelihoods, conserve natural resources and address gender right issues by empowering women and reducing their workload.

Benefits

- Rise in average crop yield from 234 kg per acre in 2012 to 351 kg per acre in 2014
- 50 percent of women in leadership position in 2014 compared to 40 percent in 2012
- 18 percent of increase in average household income, but women's income increased 64 percent
- Reduction in food shortage experienced from 7.3 months in 2012 to 2.8 months in 2014
- Improved food security for 400 farmers and their families
- Use of 10 domestic biogas plants and 60 energy saving stoves used by households
- Energy saving stoves reduced use of fuelwood by 57 percent cutting household CO₂ emissions by 1.4 tons per year
- 14,500 tree seedlings and 3000 trees planted



* Website: <https://chololoecovillage.wordpress.com/>



Energy



Livestock



Agriculture



Water



Forestry



Training



Demonstration



Peer Learning

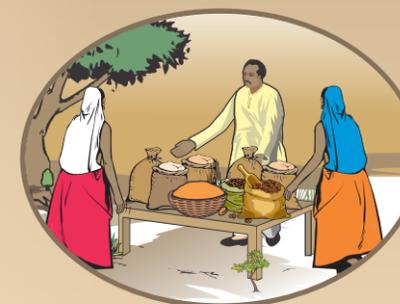


Educational
Tours and Visits



Seminar and
Workshops

Chololo Ecovillage



Exhibition



Farmer Field Days

Kiribati Adaptation Programme



Initiative of: Office of the President, Government of Kiribati*

Partners: UNDP; Asian Development Bank (ADB); World Bank; United Nations Environment Programme (UNEP); Australian Bureau of Meteorology and New Zealand Meteorological Office; United Nations Development Programme (UNDP)-Global Environmental Facility (GEF)

Year: 2003 - 2016

Sector: Cross-sectoral (Water resource management, Coastal zone management and Infrastructure)

Scale: National

The Kiribati Adaptation Program (KAP) was implemented in three phases to increase long term climate change adaptation planning in Kiribati with a focus on improving the management of freshwater resources and enhancing coastal resilience against sea level rise, climate change induced hazards and diseases, and other environmental challenges.

KAP used a participatory approach to integrate climate change adaptation into national economic and operational planning while identifying key priority sectors and strategies for adaptation, developing and implementing cost-effective adaptation measures, and extending these projects to the remote outer islands.

A major component of the programme involved raising awareness on climate change risks, improving resilience and building capacities of different stakeholders through local and national consultations as well as workshops and education campaigns designed to inculcate a positive public attitude towards the adoption of relevant adaptation strategies.



* Website: <http://www.climate.gov.ki/category/action/adaptation/kiribati-adaptation-program/>

Two way information flow helps recognise actual needs and appropriate adaptation actions at the grassroots, and incorporate them into national policies and planning.



Multi-stakeholder consultations and surveys for gauging existing attitudes towards climate change, and identifying key challenges and opportunities for building local resilience



Participatory workshops and campaigns for disseminating messages on climate adaptation, using engaging communication mechanisms, such as, audio-visual presentations, illustrated manuals, drama, songs, posters, and newsletters



Building skills and strengthening institutional capacities within the government, civil society, private sector and communities



Other Adaptation Strategies

- Mangrove re-plantation
- Improving coastal infrastructure
- Improving water resource availability and supply management
- Enhancing monitoring and management of marine and coastal ecosystems

Raising Risk Awareness



Initiative of: Climate Central, Red Cross Red Crescent Climate Centre, University of Oxford, University of Melbourne, Royal Netherlands Meteorological Institute (partners for the World Weather Attribution initiative) and Climate & Development Knowledge Network*

Year: May 2016 to March 2017

Sector: Disaster Risk Reduction

Scale: Regional (Africa – Ethiopia, Kenya, Asia – Bangladesh, India)

Improved understanding of future climate risks underpins the adaptation strategies required to build climate resilient habitats. This pilot project introduced the extreme event attribution technique, to key stakeholders from developing countries, complementing existing tools and information like forecasting and long-term projections. It is aimed at making informed decisions and securing support for building resilience. Extreme event attribution analysis results make it clear if climate change is linked to or is a driver for any individual extreme weather event in question. The extreme weather events taken into consideration are drought for Ethiopia and Kenya, extreme precipitation and heat wave for India and coastal flood for Bangladesh.

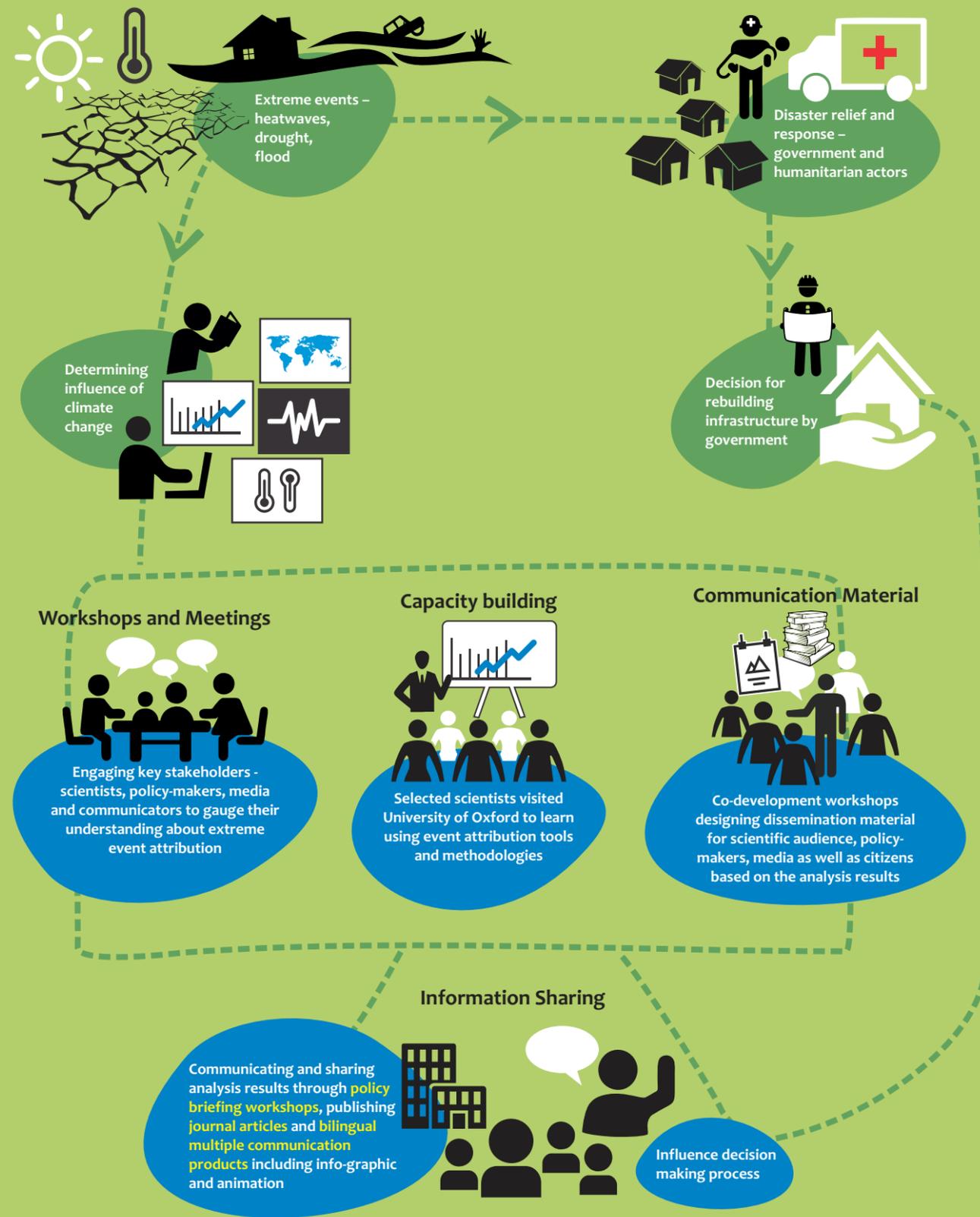
The key education components used in this project helped to transfer technical knowledge, develop communication material simplifying the technical information and its dissemination to raise awareness. This project also aided formation of extreme event attribution networks at local as well as global level for knowledge sharing.



Flickr/Marisol Grandon/ Department for International Development



* Website: https://cdkn.org/climaterisk/?loclang=en_gb



This project helped building capacity for scientific analysis and established a knowledge base which will inform disaster risk management efforts, equipped communicators to raise awareness on climate risk linking it to extreme event attribution and introduced policy-makers to the potential of using the available information for decision making.

Brazilian Observatory of Climate and Health



Initiative of: Oswaldo Cruz Foundation (FIOCRUZ)*

Partners: Department of Environmental Health and Worker's Health Surveillance, Institute of Communication and Scientific and Technological Information in Health, National School of Public Health Sérgio Arouca, National Institute of Space Research, National Water Agency of Brazil, Brazilian Institute of Geography and Statistics, Health Informatics Department, National Institute of Meteorology

Year: 2009 - present

Sector: Health

Scale: National

The aim of this project is to monitor the health related effects of climate change, organize and disseminate relevant information and promote collaborative research and action. A website has been developed as a primary tool to provide data collected from different institutes as well as from users who can feed in information. Another important research component involves monitoring and analysing climate variables and related diseases at sentinel sites distributed in different biomes in the country to produce localized results. The validated results and parameters can help with modelling the dynamics of diseases at the national level to predict future trends.

The outcome of a study conducted at one of the sentinel sites- Manaus, located at the confluence of three large rivers, which looked at the correlation between extreme climate events and water-borne diseases concluded that the water level of the rivers affects the number of cases of leptospirosis. This is because low cost traditional houses are built on stilts at the river and flood and drought affects the river water level thus disrupting the sanitation system. Consequently, one of the adaptation measures involves the establishment of minimum altitude (above the observed peak water levels in the river) for building residences and sanitation systems.

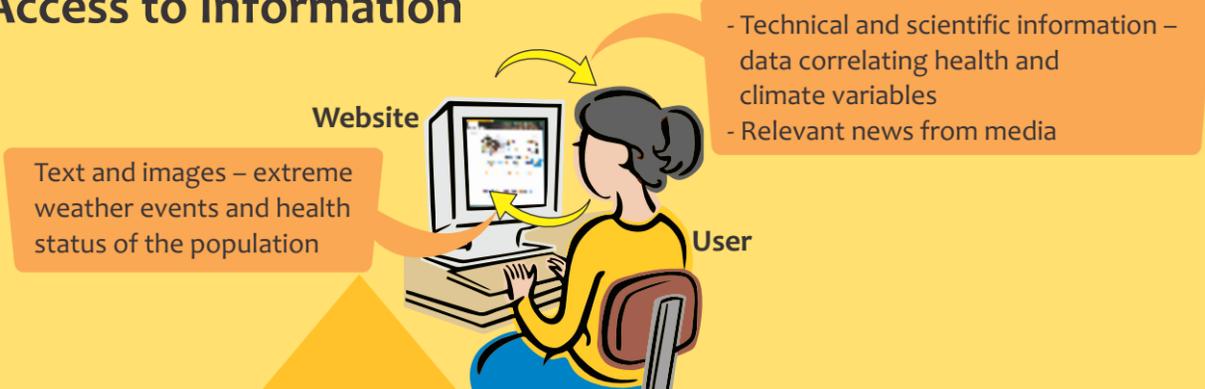


Rita Bacuri



* Website: <http://www.climasaude.icict.fiocruz.br/>

Access to Information



Data



Environmental
Land coverage, land use, forest fire



Sociodemographic
Population, migration, vulnerability



Climate
Precipitation, temperature



Health
Disease notification, hospitalization, mortality, time series

Collaboration



- Government Organization
- Non-Governmental Organization
- Civil Society
- Academic Institutions
- Researchers
- Administrators
- Health Care Professionals
- Citizens

Thematic Workshops (2009 – 2012)

- Identify list of indicators and data sources
- Raise awareness and mobilize researchers

Sentinel Site Research

- Representing different biomes and related health issues
- Acts as a warning post correlating health condition and environmental changes
- Validate and establish parameters for modeling

Brazilian Observatory of Climate and Health

Influencing decision makers

Climate Change Adaptation Project in Oasis Zones (PACC-ZO)



Initiative of: Agency for Agricultural Development of Morocco*
Year: 2015 - present
Sector: Agriculture
Scale: Local

The Oasis zone of southern Morocco faces the brunt of extreme dry weather, recurrent droughts, water scarcity, unsustainable use of water resources and forced seasonal migrations rendering the population of 1.7 million people depending on agriculture and livestock highly vulnerable. The Adaptation Fund formulated and funded a project to reduce the vulnerability of the people and the oasis agro-ecosystems of Morocco, and to increase resilience of local actors by restoring age-old techniques and disseminating relevant remedial knowledge.

Traditional “khattara” rain and groundwater collection systems which were only partly functional have been rebuilt for reuse under this project.. The primary objective is to build stakeholder resilience by

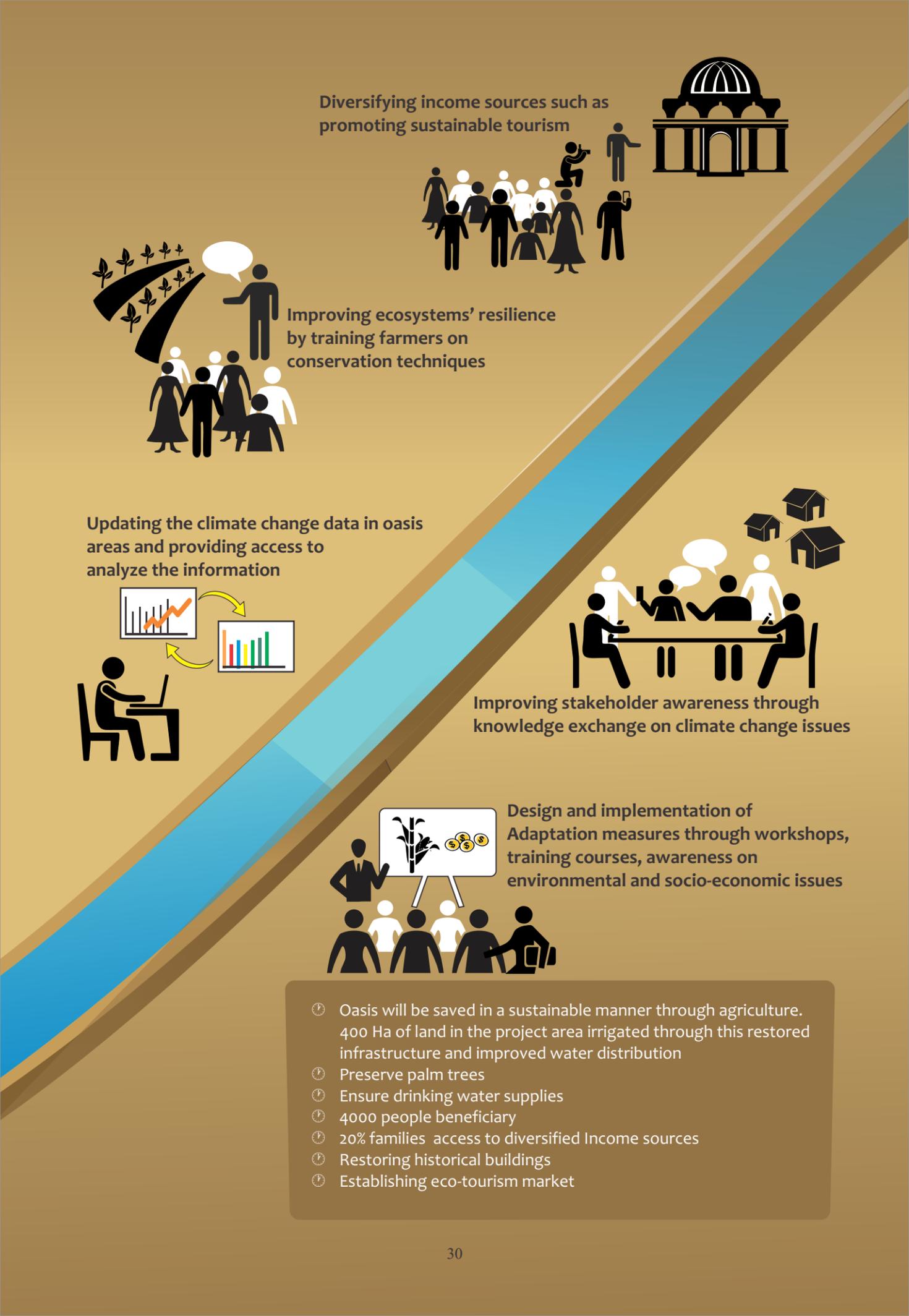
- Improving adaptive capacities in the water sector by improving access to water for irrigation purposes
- Diversifying income sources to decrease stress on existing water resources and enhance livelihoods
- Improving ecosystem resilience through the preservation and promotion of local heritage including traditionally designed mud buildings and restoration and redevelopment of historic sites
- Improving stakeholder awareness about risk management analysis of climatic information, use of methodological tools and development of adaptation modules

The project envisages an increase in groundwater supply due to the revival of the “khattara” system and improvement in the living conditions of locals due to the provided awareness on income diversification. Increasing the capacity of the local community to design and implement adaptation measures is thus expected to drastically reduce the vulnerability of the people of the oasis.



Flickr/Jennifer Pickens

* Website: <https://www.adaptation-fund.org/project/climate-changes-adaptation-project-in-oasis-zones-pacc-zo-2/>



Diversifying income sources such as promoting sustainable tourism



Improving ecosystems' resilience by training farmers on conservation techniques

Updating the climate change data in oasis areas and providing access to analyze the information



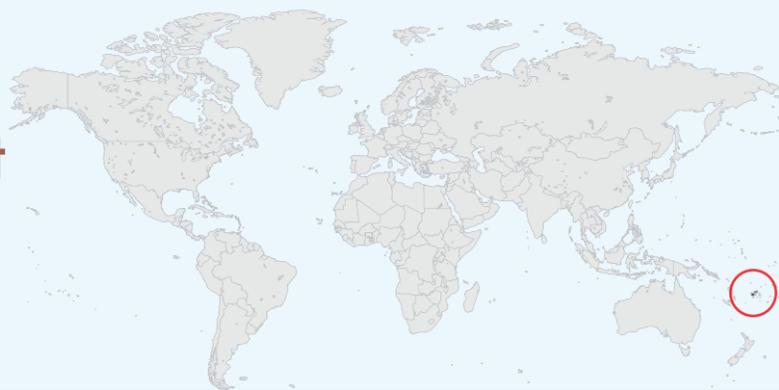
Improving stakeholder awareness through knowledge exchange on climate change issues



Design and implementation of Adaptation measures through workshops, training courses, awareness on environmental and socio-economic issues

- 🕒 Oasis will be saved in a sustainable manner through agriculture. 400 Ha of land in the project area irrigated through this restored infrastructure and improved water distribution
- 🕒 Preserve palm trees
- 🕒 Ensure drinking water supplies
- 🕒 4000 people beneficiary
- 🕒 20% families access to diversified Income sources
- 🕒 Restoring historical buildings
- 🕒 Establishing eco-tourism market

Climate Change Relocation Project



Initiative of: Government of Fiji*
Year: 2014
Sector: Loss and Damage
Scale: Local

Climate change migration or relocation has become reality for the residents of the Vunidogoloa village in Fiji. Relocation is a major adaptation strategy for the government's Climate Change Programme. Coastal erosion, floods and extreme weather events have severely impacted households which has led to residents moving to higher ground.

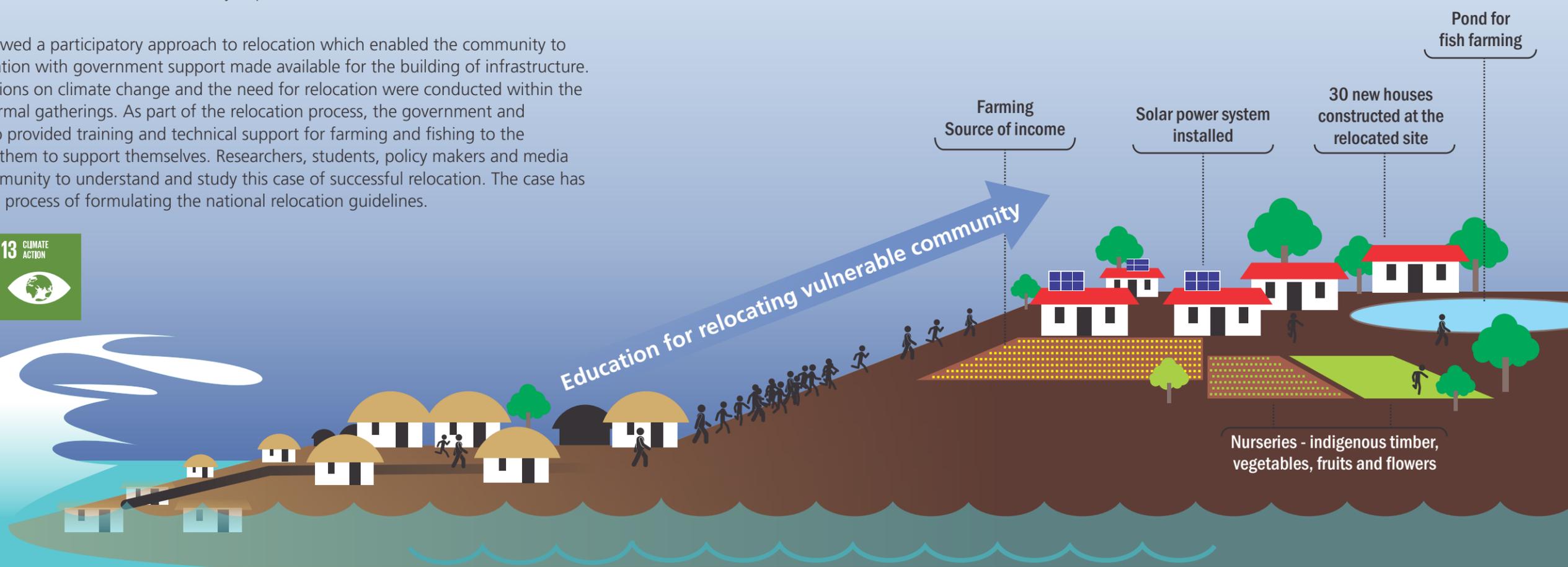
The planning process followed a participatory approach to relocation which enabled the community to identify the land for relocation with government support made available for the building of infrastructure. Prior to relocation, discussions on climate change and the need for relocation were conducted within the community at several informal gatherings. As part of the relocation process, the government and international agencies also provided training and technical support for farming and fishing to the community thus enabling them to support themselves. Researchers, students, policy makers and media have since visited the community to understand and study this case of successful relocation. The case has also informed the drafting process of formulating the national relocation guidelines.



EDUCATION can help REBUILDING SAFER and RESILIENT COMMUNITIES



Education for relocating vulnerable community



Terre d'école's Educational Project



Initiative of: Terre d'école, a program developed by the International Committee for the Renaissance of Africa (CIRA)*

Year: 1980-present

Sector: Education, Food

Scale: Global

The aim of Terre d'école is to address major issues like inculcating environment responsibility and food self-sufficiency within formal education. Terre d'école started their initiative by binding formal education with traditional knowledge following a 5-point methodology. The sustainable age old practices were blended with western knowledge into theoretical and practical education as tools for primary students. Western knowledge was used as one of the tools to enhance existing practice. This holistic balanced approach aims to impact the whole of school life of a student with the objective of promoting food security.

This integrated approach has successfully united the local system of education with decision making processes by stakeholders/decision makers to raise awareness and implement the concept of stewardship/sustenance. Terre d'école methodologies consist of implementation of age old knowledge from local culture, curriculum links and age appropriate pedagogical modules. A comprehensive media and communication strategy involving the use of press, radio, print, electronic and social media has gone a long way towards fostering a sense of stewardship of the Earth among students.



* Website: <http://www.terredecole.com/>



The first Terre d'ecole pilot school is currently under construction in Kintélé, north of Brazzaville (Congo) that will house 600 internal students, facing the new university that will house 20,000 students.

Awareness on Planting Native Trees for Adapting to Climate Change in Oman



Implemented by: Environmental Society of Oman*

Funders: Ford Motor Company Conservation and Environmental Grants, Port of Salalah

Partners: Ministry of Agriculture and Fisheries, Ministry of Environment and Climate Affairs, the Royal Court Affairs, and Nama Group

Project period: 2012 - 2014

Sector: Biodiversity and Natural Resource Management

Scale: Regional (Dhofar)

The Shajar project was founded in March 2004 to help raise awareness of environmental issues in the country through active public involvement in conservation. The project organises participatory public events in co-operation with the government, NGOs and the private sector.

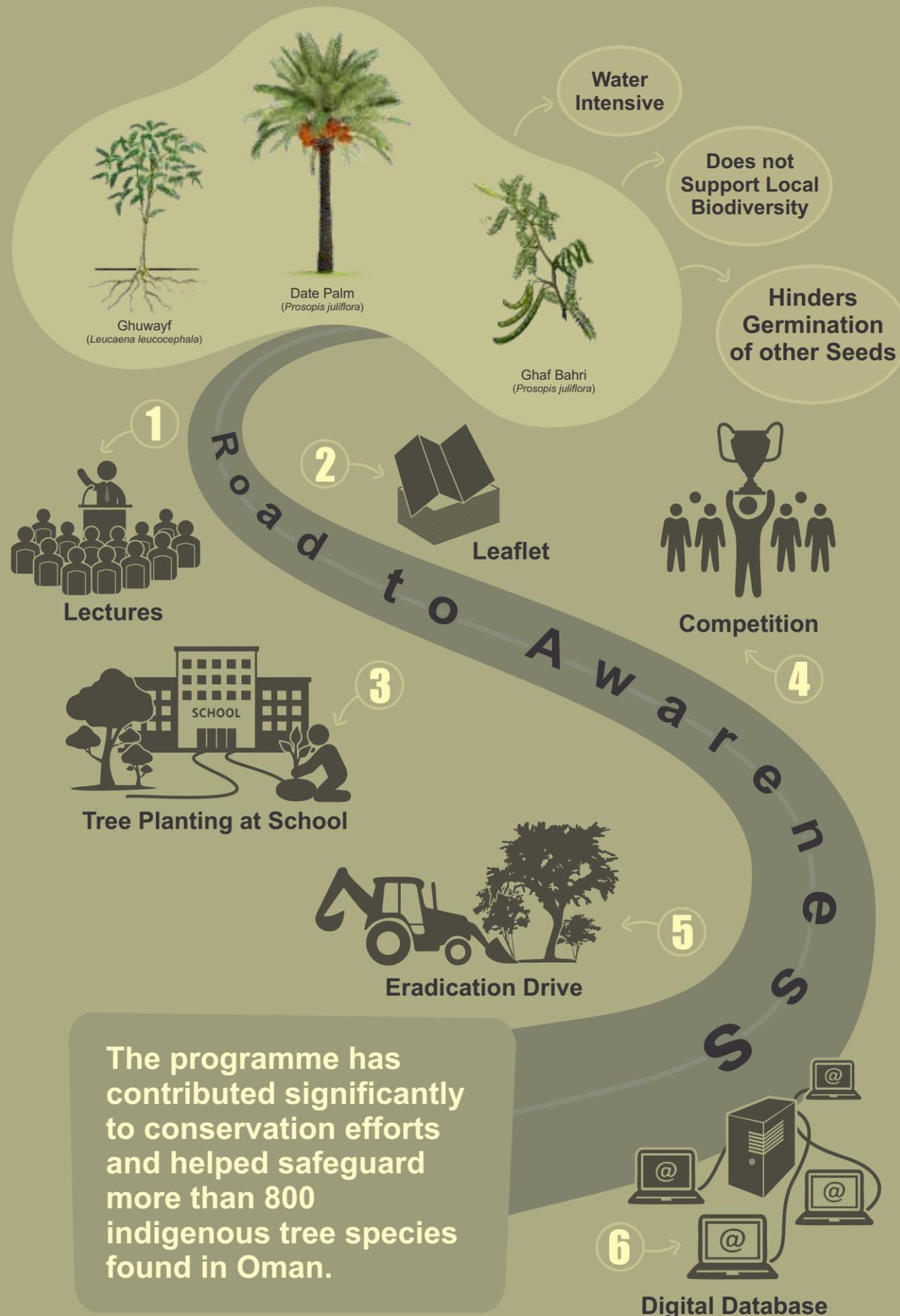
In the Dhofar region there was a general lack of awareness about the enormous water requirements of non-native tree species. Moreover due to their aesthetic appeal and other benefits, such tree species were preferred, resulting in a decline in the area covered by native species. The Shajar project was launched in 2012 with a focus on improving public awareness of the importance of planting native plants, especially trees. The project improved local knowledge about the significance of native trees thereby reducing the preference for water intensive non-native species.

The project used several educational tools such as bilingual leaflets, organising exclusive native tree-planting days, with a focus on schools. In partnership with local media, annual competitive awards for native tree-planting were organized with prizes funded by corporates. Specific days were designated as Eradication days where species like *Prosopis juliflora* were uprooted en masse with equipment (JCBs etc.) provided by commercial companies, with follow-up action by volunteers to prevent re-seeding. A digital database of indigenous flora is also being developed in Oman.



Max Pixel

* Website: <http://www.eso.org.om/index/list3.php?categoryId=744>



The programme has contributed significantly to conservation efforts and helped safeguard more than 800 indigenous tree species found in Oman.

Landscape Restoration with Local Communities and Global Awareness and Education Campaigns



Initiative of: Justdiggitt*
Year: 2013 - present
Sector: Cross-sectoral (Water resource management, Ecosystem management)
Scale : International involving multiple countries

Addressing the serious challenge of landscape degradation as a result of climate change, a non-profit organization, Justdiggitt, has initiated landscape restoration projects in several countries of Africa including Kenya, Tanzania, and Morocco, with projects planned in four more countries. The main objective of these projects is to naturally restore the native ecosystem through popularising simple measures for harvesting rainwater and preventing soil erosion. By empowering the local community through awareness, education and knowledge exchange, this initiative brings about the much needed adoption of good practice.

In addition to these pilot projects with local communities in Africa, Justdiggitt also runs a social movement to create global awareness and inspire, unite and activate an entire generation to take action to mitigate the impact of climate change. The team has developed awareness raising and education programmes which include the Justdiggitt College with an environmental curriculum for primary school students, using interesting and engaging experiments and assignments. Their awareness campaigns use multi-dimensional communication strategies to raise mass awareness that include online platforms, television, radio, documentaries, and games. All their awareness and education material including the curriculum is easily accessible online and downloadable in Netherlands currently but is expected to be launched globally with the objective of creating environmental stewards with a strong sense of empathy for the environment and respect for sustainable living.



Wikimedia Commons/ Neil Palmer



*Website: <https://justdiggitt.org/>

Awareness and Education Programmes



Primary school curriculum



Building awareness



Multimedia message dissemination



Downloadable education material

Landscape restoration actions



Rainwater harvesting



Conserving small water bodies



Sustainable agriculture practices

Analysis

Solutions to climate change are coming from diverse corners of the world. There are different enablers including technology, financial mechanisms, systems change, policy, legal mechanisms, and education contributing to the efforts for the paradigm shift required to build low carbon and resilient societies. The selected case studies highlight education as a crucial enabler which not only directly and indirectly (by influencing other enablers) addresses causes and impacts of climate change but also provide a range of socio-economic benefits. A variety of educational methods used in the case studies include training, capacity building, communication campaigns, research and information, provision of guidance, stakeholder consultations, seminars and workshops, informal discussions and meetings, demonstration, tours and visits, trial and experimentation, and peer learning. These methods have aided in overcoming barriers and provided for implementing solutions.

The Barefoot Engineers case study exemplifies how through training women, skills were imparted thereby enabling widespread adoption of new technology to harness clean energy. Training helped to overcome gender stereotypes by empowering women to set up decentralized energy system for communities.

The Cool Biz Campaign case study shows how the innovative use of communication media and events that included fashion shows, media promotion and energy consumption guidelines along with the relaxation of rigid official dress codes, generated acceptance for a dress code suitable to local weather conditions thus leading to the reduction of building heating or cooling energy needs. This project helped to create major behavioural change through greater awareness.

In the case of the Bus Rapid Transit System, visits by decision makers to cities implementing BRTS model and public participation through various methods like workshops and consultations helped to believe in the model and implement it. On the other hand promotion of the BRTS model through various medium aided building a positive image and generate acceptance of the system.

The Eco driving Programme on the other hand endorses the value of training, media campaigns, provision of appropriate driving curriculum and demonstration helped change driving behaviour to promote fuel consumption efficiency.

In a different context, the Energy Efficiency Program for Brick Producers in Latin America served to mitigate climate change through demonstration, training and knowledge exchange and the promotion of new technology by early adopters convinced brick producers to switch to energy efficient kilns.

The case study Empowering Consumers towards Energy Efficiency clearly demonstrates how providing information on individual and household energy use patterns along with advice for saving energy has proved to be effective in changing behaviour thus leading to positive action.

The Climate Right Project through trial and demonstration proves that the sharing of crucial information like data on individual consumption patterns and carbon footprint along with guidance on available alternatives aided the behavioural change process empowering consumers to make the right choices.

The Water Campaign, Jal Jeevan Hai case study presents us with irrefutable evidence that training, resource mapping, community dialogue, capacity building and awareness rallies have succeeded in teaching farmers about appropriate water conservation technology besides inculcating behavioural change and promoting the conservation of water through the adoption of water conservation measures.

The case study Empowering Vulnerable rural communities to Adapt and Mitigate the impacts of Climate change in Central Tanzania, Chololo Ecovillage strongly emphasizes the critical importance of education and communication. It shows how training, demonstration, peer learning, education tours and visits, seminars and workshops, farmer field days and demonstration can help in the transfer of knowledge, adoption of innovative low carbon technologies and practices and learning from a trial and experimentation process all of which enable communities to adapt and be resilient.

The Kiribati Adaptation Program has, through multi-stakeholder consultation, surveys, participatory workshops and campaigns, building skills and strengthening institutional capacities, ensured the integration of stakeholder concerns in formulating a national climate change adaptation response as well as in sensitizing communities for creating readiness to adopt adaptation strategies.

The Raising Risk Awareness case study illustrates how training enables the transfer of technical knowledge to scientists equipping them to generate country-specific research analysis and results which can assist in making informed decisions. Workshops and appropriate communication materials helped to convey technical information in a simple and comprehensible manner sensitizing stakeholders especially media and citizens and encouraging them to take action. Collaborative work and partnership led to further knowledge development.

The Brazil Observatory of Climate and Health case study underscores the important role that collaborative research plays in generating information and co-creating knowledge thereby contributing to informed decision making. An online tool like a website can go a long way towards sharing information, reaching out to more people and sensitizing them on all aspects of climate change and health.

In the case of the Climate Change Adaptation Project in Oasis Zones, the methodology of workshops, training courses, updating and sharing of relevant information proved highly effective in sensitizing communities to climate change issues in their region while contributing to the design and implementation of adaptation measures that enhance resilience.

In the Climate Change Relocation Project we see how public participation and discussions have been successful in engaging vulnerable communities in the plan for relocation. Training and technical support provided to the community helped them acquire new skills and means of livelihood. Visitors who then study this as a successful case of relocation and who then disseminate information about this case have also contributed to raising general awareness on the sensitive topic of climate change migration.

Terre d'ecole's Education Project used traditional knowledge, curriculum and modules, media and communication strategy to sensitize school students about environmental challenges while sharing information to assist them in making informed consumption choices.

	Cognitive Learning		Socio-Emotional Learning			Behavioural Learning		
	Improving (Scientific) Knowledge (Awareness and Formal Education)	Improving Skill and Capacities	Critical Thinking (Self Reflection)	Collaboration	Socio Economic Cultural Link	Access to Information	Leadership and Motivation	Observation, Demonstration, Direct Instruction and Symbolic Communication
Barefoot Solar Engineers		Training to use solar technology			Public Participation: breaking social barriers			
Cool Biz Campaign					Public participation: Changing dress codes		Public awareness: Prime Minister acted as brand ambassador	Public awareness: Fashion show, media campaign
Bus Rapid Transit System		Education visit/tours and interaction with transportation planners to understand BRTS technology		International cooperation: Various organizations acted as knowledge pollinators helped to improve BRTS model	Public participation: Integrate existing transportation systems and different stakeholders to implement BRTS model	Public awareness: Communication, marketing, branding to promote the use of BRTS	Advocacy: Local governments shared learnings promoted success of BRTS model	Public awareness: Campaign to build positive image of BRTS and generate its acceptance
Eco-driving Programme		Training: Included eco-driving principles in driving school curriculum						Public awareness media campaign for promotion
Energy Efficiency Program for Brick Producers in Latin America (EELA)		Training on energy efficient kiln		(International) cooperation: Systemic approach of bringing tech. suppliers, brick producers and bank together				Public awareness: Demonstration and model producer of change
Empowering Consumers towards Energy Efficiency						Public awareness and participation: Energy saving tips, information on consumption level		
Klimaträtt (Climate Right)			Public awareness: motivated community to take action because of its feel-good factor			Public awareness and participation: Mobile app and inspirational material on sustainable consumption		Public participation: Urban garden and climate healthy recipe demonstration
Water Campaign Jal Jeevan Hai	Education: Improving knowledge on water, agriculture and climate change	Training: Training of trainer						Public awareness: Symbolic communication and direct instruction
Chololo Ecovillage		Training: Introducing innovative practice		Cooperation: Multi-stakeholder approach and village collaboration				Public Awareness: Demonstration and educational visit
Kiribati Adaptation Programme	Education: Knowledge and awareness on climate change (risk/vulnerability)	Participatory approach for adaptation strategies		Cooperation: Multi-stakeholder approach				Public Awareness: Pilot projects for information sharing
Raising Risk Awareness	Education: Scientific knowledge on extreme weather events and climate change	Training: methods for event attribution		International cooperation: Global-national collaboration				
Brazilian Observatory of Climate and Health	Education: Improved scientific knowledge, information sharing on climate change and health			Cooperation: Collaborative research and compilation for linking health and CC				
CC Adaptation Project in Oasis Zones (PACC-ZO)		Training: Information sharing on sustaining action						
Climate Change Relocation Project	Education: Sensitizing global audience on climate change migration	Training: Training to diversify livelihood		Cooperation: Government - community				
Terre d'école's Educational Project	Education: Curriculum and modules development							Public awareness: Using traditional knowledge, media and communication strategy
Awareness on Planting Native Trees								Public awareness and participation: Leaflets, plantation drives and native tree planting
Landscape Restoration Campaigns	Education: Increases awareness on climate change							Public awareness and participation: Pilot project which promotes restoration

In Oman, the Awareness on Planting Native Trees for Adapting to Climate Change Project demonstrates how simple communication strategies involving leaflets, plantation drives and native tree planting competitions can be very effective in raising awareness about the importance of native tree species among communities. Thus education and information successfully triggered public action towards conserving native flora.

Landscape Restoration with Local Communities and Global Awareness and Educational Campaigns using a range of strategies that include developing and integrating environmental curriculum in schools, education material and multimedia campaigns, have helped to sensitize school students and communities to understand and address various environmental challenges including climate change and has also encouraged individuals to take action by equipping them with the requisite skills and knowledge.

These case studies underscore the primary role that education has played in the co-creation of innovative, acceptable and cost effective solutions: facilitating technology transfer, enabling communities to leapfrog by adopting innovative clean technology and sustaining its use, generating readiness for bringing about change and mobilizing and engaging people in the development and implementation of solutions. The outcomes of the case studies suggest that multiple environmental and socio-economic benefits flow from keeping education, environment and people at the heart of the project process. Creating awareness about climate related solutions is imperative to engineering behavioural change without which it is impossible to achieve change towards the goals of the Paris Agreement and sustainability at a large. In every context, information alone is inadequate without interpretive communication and guided demonstration and our case studies are testimony to the singular success that innovative and diverse education and communication strategies can achieve towards climate action.

The table 1 captures the educational components of the selected case studies applied to the six UNFCCC elements - education, training, public awareness, public participation, public access to information and international cooperation¹ - and the UNESCO criteria of cognitive learning, socio-emotional learning and behavioural learning². The table indicates how the UNFCCC education elements can be directly combined with the UNESCO criteria on Education for Sustainable Development Goals that add a qualitative character and objectives to the envisioned educational elements.

¹UNFCCC, 1992: United Nations Framework Convention on Climate Change, http://unfccc.int/files/essential_background/background_publications_htmlpdf/application/pdf/conveng.pdf

²UNESCO, 2017: Education for Sustainability Goals, <http://unesdoc.unesco.org/images/0024/002474/247444e.pdf>

Conclusions

The report clearly indicates how education is a key driver for behavioural change. Climate change mitigation objectives aim at behavioural change towards more sustainable behaviour and lifestyle as often technological solutions alone cannot achieve mitigation. Cases like Cool Biz and Klimaträtt show the high relevance of education for the kind of climate actions that seek behavioural change. Sustainable lifestyle choices, personal habits and cultural customs can best be embraced by education, awareness raising and public participation that encourage behavioural learning through access to information, leadership and motivation as well as observation and demonstration.

The empirical evidence shows how including education in NDCs can support the success of climate action for long-lasting results. Lessons on how best to integrate educational components in climate projects can be taken from case studies such as Transmilenio from Bogota, Colombia and Barefoot Solar Engineers, among others. Educational strategies as part of the NDCs would thus facilitate an easier and faster achievement of the goals set therein. Educational approaches will be particularly effective in creating long-lasting climate action outcomes when they aim for cognitive as well as socio-emotional learning. This includes improving scientific knowledge through formal and non-formal education, awareness raising, creating links between socio-economic and cultural factors, promoting integrated and holistic approaches, critical thinking and cooperation. For example, public transportation systems need public acceptance possibly through socio-cultural approval while promoting solar engineering work by women in villages requires not only technical training but also socio-cultural acceptance which can, in both cases, be effectively achieved through widespread community education and awareness.

As is evident from the matrix presented in the analysis, the educational components of the case studies strongly relate to the criteria specified by the UNFCCC and the UNESCO. Educational approaches under UNFCCC can and must link to UNESCO's Education for Sustainable Development Goals. This would enrich climate action implementation tremendously while aligning it with the 2030 Agenda by adding a qualitative character to the envisioned educational elements of ACE's education, training, public awareness, public participation and public access to information and international cooperation.

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For Sustainable Development

"Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning "



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