17 years of ReSource Award
In 2015, 844 million people lacked a basic drinking water service.
263 million people (4% of the population) spend over 30 minutes in round trips collecting water from an improved source, while 159 million people collect drinking water directly from surface water sources (2015).

Statement

There have been remarkable improvements in the past decades on water supply and sanitation. Between 1990 and 2015 the number of people lacking access to improved drinking water went down from 1.3 billion to 663 million. 147 countries have met the Millennium Development Goal (MDG) drinking water target. However, numerous challenges persist, and new ones emerge in conjunction with demography, urbanisation, climate change and pollution.

This report focuses on the ReSource Award, our most long-standing commitment with 17 award cycles. Swiss Re initiated the award in 2002 as a sponsoring engagement, with the aim to raise awareness of the importance of protecting water sources in developing and emerging countries. The Swiss Re Foundation took over the award in 2011. It evolved into one of our key initiatives to manage water sustainably by nurturing early-stage water enterprises. In 2019 the Board of Trustees decided to conclude this journey and sharpen the Foundation’s focus by strengthening resilience-building. The Entrepreneurs for Resilience Award, which we created in 2016, underpins our ongoing awareness of and commitment to the importance of water in the context of strengthening resilient communities.

This report puts the spotlight on our partners from the ReSource Award and their achievements: More than 80% of them are still enthusiastically driving their solutions and have achieved great impact. Although we supported a wide variety of solutions, one important success factor characterises many approaches on all continents, namely context-specific application of the “Payment for Environmental Services” principles. Several partners illustrate how this approach optimises impact on the ecological and social side and leads to a convincing sustainable business model.

With the Entrepreneurs for Resilience Awards we continue to support social entrepreneurs. We benefit from the findings from the ReSource Award, which we also share in this report. Key findings include the importance of demand-driven coaching to support partners’ development beyond grant financing and the upfront definition of impact goals to continuously improve effectiveness of the award. We keep refining the approach, and the report engages us on a critical path of reflection. Could awards trigger impact-focused portfolios? Which funding instrument lends itself best to supporting social entrepreneurs? So our learning journey continues.

Let me conclude by thanking all innovators and involved parties who allowed us to make the ReSource Award a key element of our engagement over nearly two decades, emphasising the importance of sustainable solutions to protect water. A special thanks goes to BHP-Brugger and Partners. They not only actively drove implementation of the ReSource Award but were also in charge of authoring this final report.

Let’s continue our journey and help build resilient societies together with our partners.

Stefan Huber Fux
Director, Swiss Re Foundation
Brief History of the ReSource Award

The aim of the ReSource Award, initially focusing on sustainable watershed management, was to raise awareness of the ecological, social and economic importance of protecting vulnerable water sources in developing and emerging countries by recognising promising projects that demonstrate innovative, practical and scalable solutions.

Vision, aim and thematic focus

In April 2002, Swiss Re organised jointly with the Swiss Government’s interdepartmental working group IDA Rio an international stakeholder dialogue entitled “Sustainable water management – priorities for policy frameworks and best practices”.

Held at the Swiss Re Centre for Global Dialogue in Rüschlikon, the conference was launched with the dual aims of furthering understanding in the field of sustainable water management and of promoting action for change. Building on the findings of the International Conference on Freshwater in Bonn (December 2001) and other important discussion forums, the specific goal of the conference was to work out recommendations for the further development and implementation of adequate policy frameworks and best management practices with respect to freshwater issues. Further, the over 140 participants from governments, intergovernmental and non-governmental organisations, and the academic, investment and business world were invited to contribute to the international agenda on water at the World Summit on Sustainable Development (Johannesburg, August/September 2002) and beyond. At that conference, Swiss Re introduced its International ReSource Award for Sustainable Water Management, which was launched on the very same day.

The idea to launch the award in 2002 was triggered by the findings of Swiss Re research on current trends in water usage and quality of drinking water, which were published in a focus report entitled “The water factor”. Water has always been a major factor in insurance, either as storms or diluvial rainfalls causing floods or unleashing landslides and mudslides or damage caused by droughts. With the ongoing depletion and pollution of global water resources, the unchecked growth of world population and its unmet demand for safe drinking water, the trend has disastrous consequences for health and nutrition. It is gaining pivotal importance, threatening the natural environment, humanity and the economy. The impact of climate change is compounding the problem. Responding to these vital concerns, Swiss Re committed to promoting awareness of water-related problems and expertise among its clients, employees and other stakeholders and – besides including specific criteria in risk assessment and transfer solutions – to promote constructive dialogues on water issues to help establish legal frameworks, guidelines and best practices. With its ReSource Award, Swiss Re and Swiss Re Foundation engaged in supporting eco-efficient, sustainable water initiatives launched and implemented by civil society, scientific, private sector and governmental organisations. It did so uninterruptedly for seventeen years, with over 2 500 reviewed proposals, 36 rewarded solutions, and more than USD 2.5 million allocated grants. With the exception of two organisations which received awards but to which contact could not be established when producing this publication, all other 34 are operational and have even substantially increased their activities.

The aim of this publication is to capitalise on and share the experience

- in identifying and promoting social-entrepreneurial initiatives with a special emphasis on sustainable water/natural resource management in a challenging context: early-stage start-ups in fragile social and economic regions dealing with natural resources;
- in running an award-based grant scheme: identification of and provision of meaningful support – besides financial – to social-entrepreneurial initiatives in challenging contexts.

Over 2 billion people live in countries experiencing high water stress

1 The interdepartmental working group IDA/Rio was composed of the Swiss Agency for Development and Cooperation (SDC), the Swiss Agency for the Environment, Forests and Landscape (SAEFL) and the State Secretariat for Economic Affairs (SECO)
2 Summary of the conference: https://enb.iisd.org/crs/ruschlikon/sdvol73num1.html
3 The water factor: link to press release
Interview with Peter Forstmoser
Chairman of the Board of Directors of Swiss Re, 2000–2009

Q At the time when the ReSource Award was launched, you were Chairman of the Board of Directors. Can you remember why the company declared water as a “top topic”, even though the relevance for Swiss Re from a core business perspective was much less obvious compared to other declared top topics such as climate change, natural hazards, nanotechnology, global ageing or insurance-linked securities?
A Swiss Re, like any other insurance or reinsurance company, depends on sustainable and to some degree predictable developments. I remember that Swiss Re was one of the first companies in the insurance sector placing special emphasis on sustainability, in a rather general way. With numerous publications, Swiss Re aimed at raising public awareness. To illustrate the problems and the pursued goals, it made sense to put a special focus on one specific topic. Water was identified as a topic of growing relevance.

Q Why should a company like Swiss Re engage in philanthropy, considering that it already provides value added to society by offering useful quality products, being a responsible employer and taxpayer and adhering to laws and good business practices?
A A company can provide value added to society in different ways. Primarily it should run its business in an efficient and successful way. Pursuing its activities in an excellent way is the primary goal of a stock corporation. The result is in the interest not only of its shareholders but also of the employees, clients, and – in the case of larger firms – of its natural and economic environment. A second way to support society is sponsoring, which means engaging in activities that do not directly create profit but help to support a company’s reputation and thus build up goodwill on which the company will be able to count in numerous ways, for example by creating an understanding social environment and being seen as an employer of choice. Third, a company should – not differently from any physical person – behave as a good citizen and engage in philanthropy. For this third activity no reward – financial or otherwise – is expected. This type of engagement cannot go beyond rather narrow limits, however, because it is the shareholders’ money that is being spent.

Swiss Re has a long tradition of sponsoring by sharing the findings of its own research with specialists and the public at large. Two examples are the topics of climate change and of global ageing. The ReSource Award was also an activity in the field of sponsoring.

Q Do you think that the ReSource Award was successful and if yes, why?
A Primarily, it was a success by promoting the general awareness of water scarcity as one of the biggest environmental challenges. At the same time, it fostered the reputation of Swiss Re as a responsible company and a thought leader. So, yes, it was a success, a fine example of meaningful sponsoring.

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**Phase 2 (2016 – 2019)**

Thirteen years after its launch, the management of Swiss Re Foundation, which hosted the International ReSource Award since its incorporation in 2011, evaluated the initiative’s scope, process and criteria together with the jury team. Based on the findings, the Foundation aligned the concept and design of the ReSource Award with a stronger emphasis on nurturing early-stage social enterprises (see Fig 2).

Furthermore, the award scope was broadened from watershed to water management, and the process (see Fig. 3) and some of the criteria were modified (see Fig. 4). The initiative was renamed the “International ReSource Award for resilience in sustainable water management” (RSA), reflecting this evolution.

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**Figure 2**

Characterisation of target audience of the RSA since 2016 (dashed box)

<table>
<thead>
<tr>
<th>Social purpose organisation (SPOs)</th>
<th>Charities</th>
<th>Revenue generating social enterprises</th>
<th>Socially driven business</th>
<th>Traditional business</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grants only: no trading</td>
<td>100%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Trading revenue and grants</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Potentially sustainable &gt; 75% trading revenue</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Break-even all in come from trading</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Profit surplus reinvested</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Profit distributing socially driven</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>CSR company</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Company allocating percentage to charity</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Mainstream market company</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
</tr>
</tbody>
</table>

*Source: EVPA2013*

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**Figure 3**

Selection and coaching process

<table>
<thead>
<tr>
<th>Steps</th>
<th>No. of Proposals</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drafting short proposals by applicants</td>
<td>140</td>
<td>Call for proposal day 0</td>
</tr>
<tr>
<td>Focus check by experts</td>
<td>140 → 66</td>
<td>Application deadline + 60 days</td>
</tr>
<tr>
<td>Rating short proposals by experts</td>
<td>66 → 17</td>
<td>Notification “full proposal” to applicants + 30 days</td>
</tr>
<tr>
<td>Drafting full proposals by applicants</td>
<td>17 → 7</td>
<td>Full proposal deadline + 30 days</td>
</tr>
<tr>
<td>Rating full proposals (jury committee)</td>
<td>7 → 4–5</td>
<td>Rating deadline + 15 days</td>
</tr>
<tr>
<td>Interviews (jury committee)</td>
<td>4–5</td>
<td>Top 7 for jury rating + 15 days</td>
</tr>
<tr>
<td>Jury rating (all other jury members)</td>
<td></td>
<td>Jury-call I: Questions to top 4–5 applicants + 15 days</td>
</tr>
<tr>
<td>Answering jury questions by applicants</td>
<td>4–5 → 3</td>
<td>Jury call II: Selection of 3 finalists + 9 days</td>
</tr>
<tr>
<td>Jury revision of answers</td>
<td>3 → 1</td>
<td>Jury preparation</td>
</tr>
<tr>
<td>Coaching of 3 finalists (monthly update followed by call)</td>
<td></td>
<td>Further development of full proposal</td>
</tr>
<tr>
<td>Pitch and award ceremony</td>
<td></td>
<td>Jury-finalist meeting: Selection of winner + 180 days</td>
</tr>
<tr>
<td>Building enterprise (coaching and monitoring)</td>
<td></td>
<td>around 3 years</td>
</tr>
</tbody>
</table>

---

**Brief History of the ReSource Award**

**Steps**

1. Drafting short proposals by applicants
2. Focus check by experts
3. Rating short proposals by experts
4. Drafting full proposals by applicants
5. Rating full proposals (jury committee)
6. Interviews (jury committee)
7. Jury rating (all other jury members)
8. Answering jury questions by applicants
9. Jury revision of answers
10. Coaching of 3 finalists (monthly update followed by call)
11. Pitch and award ceremony
12. Building enterprise (coaching and monitoring)
Beginning with the 2016 award cycle, Swiss Re Foundation invited social purpose organisations with start-up businesses that promote sustainable management of water resources, or well-developed ideas for such businesses, to apply.

Selected by a jury of eleven water and business experts, the three award finalists received USD 25,000 to develop their business prototypes over a six-month incubation period. During this time, Swiss Re staff and Swiss Re Foundation partners provided them with mentoring tailored to their specific developmental stage and needs. The winner selected by the jury’s majority decision received an additional USD 75,000 and access to relevant knowhow and coaching to build the envisioned enterprise over the following three years. With this approach, Swiss Re Foundation aimed to nurture social innovations in their precarious early stages by giving entrepreneurs not only financial resources but also the opportunity to collaborate with experienced Swiss Re experts and other Foundation partners.

Figure 4
Additional assessment criteria of RSA 2016–2019

- **Social and ecological challenge**: The proposal demonstrates a profound and authentic understanding of the social and ecological problem to be addressed.
- **Approach**: The proposal outlines a compelling social entrepreneurial approach to address the defined challenge. The defined goal and expected impact can realistically be achieved with the approach presented.
- **Financials**: A financially viable business plan is presented, based on clear and logical assumptions.

The most important issue a donor should take into account is that an organisation applying for a grant should prove that it has been operational in the project area and not just be an opportunistic entity which, at the end of the project, will leave the field. The applicant must demonstrate its work with results, with local partners, and above all with scientific information that it has collected in recent years, before applying for a grant. In our experience with the ReSource Award, there were no over- or undervalued criteria at the time we formulated our project.”

Shana Fatina, Komodo Water, Finalist of ReSource Award 2019
Beneficiaries all projects

- 2.5 million GRANT FUNDING PROVIDED IN USD
- 2500 PROPOSALS REVIEWED
- 36 PROPOSALS REWARDED
- 26 COUNTRIES IN TOTAL
- ~80/90% VENTURE STILL OPERATING
- 7,720 HOURS OF COACHING
- 895,360 DIRECT BENEFICIARIES
- 4,500 PEOPLE NETWORK

Click on the buttons and read more about the projects
Beneficiaries Winner phase 1 (2002 – 2015)

02 (Two winners)
Guatemalan water users become biosphere conservers
Fundación Defensores de la Naturaleza aims to mitigate human-caused threats to freshwater and downstream coastal marine ecosystems such as deforestation, cattle ranching, agricultural expansion and over-consumption of surface and ground-water resources by compensating forest owners and other parties for their conservation activities in line with an area-specific forest and watershed management plan.

03
Introducing regulatory watershed reforms in Vietnam
The main aim is to introduce and ensure the sustainable management of the watershed by the indigenous population. By allocating land rights to the local communities, responsibility for conserving forest, land and water sources is delegated to those directly affected. Awareness and training programmes help them to acquire the skills needed to manage natural resources and safeguard their sustenance in the long term.

04 (Two winners)
Clean water through ecosanitation in China
The Yunnan Environmental Development Institute supports activities aimed at protecting and rehabilitating the upstream water sources of the Pearl River system without any resettlement of lake residents and tourists in Xian Rendong village and tourist spots. Residents benefit from reduced water pollution and higher living standards as a result of eco-sanitation installations and biogas production.

04* (Two winners)
Water quality improvement in Ecuador through utility leadership
ETAPA, the public municipal company for water supply and sanitation in Cuenca, aims to sustainably manage the Tomebamba watershed in the southern Andean region. Key activities include installing dry sanitation facilities, building capacity among community leaders and beneficiaries and providing environmental education for schoolchildren. Reintroducing alpacas should help combat accelerated soil erosion and water contamination from intensive cattle production.

05
Compensating for upstream activities in the Philippines
Resources, Environment and Economics Center for Studies, an all-Filipino organisation, aims to protect the environment and alleviate poverty in the Palablanca Protected Landscape and Seascapes area in the Northern Sierra mountain range on Luzon Island. The project has been designed to be economically sustainable through Payment for Environmental Services, livelihood activities and other benefits such as agroforestry. Upstream communities receive training in sustainable farming practices, and forest patrolling and monitoring.

06 (Two winners)
Participatory community watershed management in China
The Mountain Institute (MTI) works together with government agencies, village committees and community representatives to ensure clean and safe water supplies from the Sangna reservoir watershed. The Sangna Reservoir Bureau and MTI jointly designed activity plans based on improved management practices for several communities with around 1 200 inhabitants that make up the catchment area.

07*
Water harvesting to improve livelihoods in southern Ethiopia
The Ethiopian Rainwater Harvesting Association (ERHMA) aims to promote rainwater harvesting among local communities in southern Ethiopia. Project goals include building sand dams and storage tanks to ensure access to safe drinking water and water for productive use in the short and long term for communities living in the catchment area of an ephemeral watershed.

08 (Two winners)
Infrastructural and institutional measures to revitalise degraded watersheds in Afghanistan
Helvetas aims to improve livelihoods of the poor rural population in the Kahmard district, Afghanistan, by reducing the risk of flood damage and increasing long-term land productivity. This is achieved by a combination of measures such as structural remedies, re-vegetation, institutional arrangements and capacity building.

09
Establishing municipal water funds in Bolivia
Fundación Natura Bolivia aims to help municipalities establish Municipal Water Funds to maintain drinking and irrigation water supplies, invest in upstream watershed protection and improve livelihoods in Bolivia’s Santa Cruz valleys. Natura Bolivia specialises in developing financial mechanisms that compensate upstream landowners for the opportunity cost of protecting environmental services.

10
Sustainable agricultural and husbandry systems in Madagascar
The WWF Madagascar and Western Indian Ocean Programme Office aims to improve farmers’ access to water, better technologies and production resources, thereby enhancing food and income security in Madagascar’s Manakaravaky watershed while significantly reducing pressure on the Tsimanampetsotsa National Park.

11
Viable watershed management in Kyrgyzstan through PES and REDD
The Regional Environmental Centre for Central Asia (CAREC) aims to create a Payment for Ecosystem Services (PES) scheme, linking upstream and downstream populations of the Chon-Aksuu river basin. To ensure sustainability of the PES scheme, the project also aims to include a Reducing Emissions from Deforestation and Forest Degradation (REDD) scheme.

12
Engaging the community of Kibera slums in Kenya
The Kounkuey Design Initiative implements three “productive public spaces” including river bolstering, environmental remediation, water supply, sanitation facilities, community buildings and micro-businesses in partnership with residents of the Kibera slums in Nairobi. The economic and social benefits of the reclaimed river and public spaces will engender a new spirit of environmental stewardship and cooperation amongst residents.

13
Mobilising local resources and institutions for integrated watershed management in Nepal
Local Initiatives for Biodiversity, Research and Development (LI-BIRD) aims to protect watersheds and improve livelihoods in rural Nepal through economic incentives and community engagement. Service charges from watershed users will be used to compensate local communities for protecting lakes from unsustainable farming and water usage.

14
Scaling-up sustainable land use practices in Pantanal region, Brazil
With its engagement, Wildlife Conservation Society (WCS) aims to protect and restore the ecological function of streams and native vegetation areas in the Pantanal. In particular, it will scale up a proven approach to promoting sustainable land use from individual properties to an entire rural municipality of Corguinho.
Beneficiaries Winner phase 2 (2016 – 2019)

The award was a good support especially for ‘not really early stage projects’, such as those in the transition to becoming scalable. Through the award process, we as the finalist had to challenge our proposal, our business concept. This helped us to re-root the direction of our goals. The coaching programme during and after the selection process made it easier for us to see ourselves from a different perspective. Most social enterprises are focused on the impact, but the entrepreneurial aspects must not be neglected. Thinking must become more sustainable, regarding all three dimensions.”

Shana Fatina, Komodo Water

Challenge
Sustainability and reliability of water access is one of the major challenges in the water sector. Despite a quadrupling of funding for water and sanitation since 2002, 53% of Tanzania’s population does not have access to clean water. It has been estimated that 30–50% of water points in certain regions of the country are broken and abandoned. Attempts to increase the coverage and sustainability of water infrastructure have been undermined by top-down delivery and management models, use of expensive foreign technologies and a lack of skilled mechanics at the community level. In such an environment, repair and rehabilitation are not only cheaper than creating new water points but also more ecological and protective of water resources.

Entrepreneurial approach and Innovation
MSABI developed an integrated solution to provide sustainable, reliable and lifelong water access. MSABI is validating and regionally scaling the programme “Pump for Life”, a subscription-based system for water point maintenance and repair. Customers receive proactive (monthly) maintenance and reactive repair services in exchange for a monthly or annual subscription premium. The premium can be paid through mobile phone money transfer services, making it accessible to people in remote areas with no access to conventional banking.

A decentralised network of private-sector mechanics, who are situated in hub locations to maximise operational efficiency, maintain and repair the water points. A key element of Pump for Life’s operations is its advanced surveillance-response system. Based on locally available information and communication technology, it monitors premium payments, the distribution and functionality of water points, spare part usage and water point history. MSABI draws on elements of modern subscription and data-driven systems from other sectors, an approach which is expected to be a game changer in guaranteeing water access reliability relative to conventional systems.

Achievements
Pump for Life went through a significant transformation since it successfully applied for the ReSource Award. The programme was restructured from a charitable into a for-profit model and became the largest programme within MSABI, the umbrella organisation. In 2020, the Pump for Life network comprised 16 decentralised mechanics and 175 service subscribers, paying on average a monthly premium of USD 5–15, thereby assuring access to safe drinking water for 36,800 beneficiaries. 100% of water points subscribed to the system are functional and, if defective, can be repaired within 24 hours. After validation of the new business concept, Pump for Life is ready to scale and expand into other East African regions that face similar challenges.
from 11.4 kg in the 1970s to 6.4 kg in fisheries' output per person declined most Zambians, annual capture to adequate storage. Moreover, while poor irrigation, pests and limited access deliver fresh high-quality produce due to country, are unable to consistently Farmers in Zambia, a land-locked approach are needed to avert famine. Depend on reliable rainfall, other 2050. As traditional farming methods from 1.2 billion today to 2.5 billion by the United Nations expects to increase Sub-Saharan Africa's population, which the region is experiencing below-average rainfall due to climate change, resulting in below-average food supplies. Nearly 70% of the water taken from rivers and groundwater goes into agricultural irrigation. At the same time, demand for protein and fresh produce is rising within Sub-Saharan Africa’s population, which the United Nations expects to increase from 1.2 billion today to 2.5 billion by 2050. As traditional farming methods depend on reliable rainfall, other approaches are needed to avoid famine. Farmers in Zambia, a land-locked country, agriculture is unable to consistently deliver fresh high-quality produce due to poor irrigation, pests and limited access to adequate storage. Moreover, while fish is an important source of protein for most Zambians, aquaculture’s output per person declined from 11.4 kg in the 1970s to 6.4 kg in 2003.

Clearwater Farms Zambia

Entrepreneurial approach and Innovation
Applicable in horticulture as well as aquaculture, aquaponics (AP) can deliver high-quality crops year-round as well as better yields than field-based farming. It also uses as much as 50% less water than drip irrigation systems and is independent of rainfall. Clearwater Farms uses aquaponics for synergistic production of horticulture and fish. The enterprise buys from smallholders or cooperatives, helping them generate income and access local markets, and sells to supermarkets, hotels and restaurants. It also offers a return for investors who finance the development of the enterprise.

Achievements
With the support of the ReSource Award, Clearwater Farms proofed its concept in the Zambian market and the reliability of its sales channels to end customers. The organisation provided trainings to small holders in the management and maintenance of the aquaponic systems. Clearwater Farms' success contributed to increasing the interest and awareness of aquaponic farming in Zambia. The company was also exploring the production of oil crops in order to expand into other revenue-generating activities and scale its system. Clearwater Farms was working towards fulfilling the full potential of aquaponic farming in the region under the management of a local entrepreneur on the ground.

CASSA Guatemala

Entrepreneurial approach and Innovation
Guatemala’s worst health and environmental problems stem from poor housing. The country’s housing shortage forces about half the population to live in inadequate, unsanitary dwellings that lack one or more basic services – water, energy and sanitation – and have harmful, wasteful impacts on the environment.

While Guatemala has ample water and forest cover, both resources are vanishing fast. Most people cook over open wood fires, which depletes forests and aquifers and causes respiratory ailments – now the country’s leading cause of death. Many people dig unregulated wells and use open-pit latrines, and most piped sewage is discharged untreated into waterways. Over 95% of rivers are polluted. Widespread sustainable housing solutions could solve many of these challenges..

Achievements
With the support of the Swiss Re Foundation, CASSA conducted a thorough revision of its business model. And to take it to scale, the enterprise used the grant to hire more personnel and launch a wide-ranging marketing campaign. The number of projects under construction is increasing and the company received additional funding to fuel its growth and create impact to better and more sustainable housing in Guatemala. In 2020, 51 projects have been realised with more than 1 300 residential beneficiaries, an installed clean water collection capacity of total 29 200 m³ and over 410 000 kWh clean energy being delivered.
In India, 75 million people are exposed to fluoride and arsenic in their drinking water, and another 150,000 die every year due to faecal contamination. WaterAid published a report stating that each year 73 million working days are lost to waterborne diseases, costing the economy an estimated USD 600 million. The simplest solution is often to simply drink from clean sources, but there are no accurate diagnostic tools for users to identify such sources in the field. Generally, there is a lack of accurate water quality data in India, and no means to collect it. Community-level water purification systems require frequent monitoring. Field testing kits do exist but are often unreliable. At present the only dependable testing method is to send water samples to government labs that exist in every district. However, none of these solutions provide a simplified way to collect and manage the data, a process that is prone to errors.

**Entrepreneurial approach and Innovation**

ffem develops tools that significantly reduce the cost involved in implementing water supply infrastructure projects. Their main products are low-cost smartphone-integrated water testing tools that can test a range of parameters for water quality and significantly improve the quality and ease of collection of water point data. ffem mainly targets organisations working in the water, sanitation and hygiene (WASH) sector, particularly in water supply and quality management. The users would be field staff with little to no formal training in chemistry and data collection, and the tools are designed with this fact in mind. ffem is seeking to set up micro-entrepreneur models whereby local contacts would be offered ffem’s kits for purchase to provide testing-as-a-service on a local scale, either through a rental or subsidised model. ffem plans to set up a public platform for drinking water quality, which would allow more organisations to connect within the sector while also enabling better-quality data to be shared across sectors.

**Achievements**

This venture started with a group of friends who wanted to use their skills and know-how to address waterborne health issues in India, thus improving the livelihoods in local communities. Over time their products and solutions underwent extensive testing and sophistication. In 2019 approximately 1,000 products were brought to market, which is more than twice as many as in the previous year. With the support of the Swiss Re Foundation, the business model as well as risks and opportunities were critically analysed and refined. As part of this process, a new for-profit entity, Heuristic Devices, was set up in December 2019. The organisational structure and processes are now under review, and the necessary adjustments are being implemented in preparation to scale its business while adhering to ffem’s open-source philosophy.
The following evaluation takes a systematic, critical and objective look at the ReSource Award (RSA), in line with the five key criteria for results-based management suggested by the OECD Development Assistance Committee (DAC) and SECO⁴ comprising:

- **Relevance**
  The extent to which a) the objectives of the RSA are consistent with beneficiaries’ requirements and b) its activities and outputs are consistent with the intended objectives (outcomes/impact).

- **Effectiveness**
  The extent to which the RSA’s objectives were achieved or are expected to be achieved at output, outcome and – ideally – impact levels. Due to the difficulty of assessing effectiveness at impact level and considering the purpose of this evaluation, the focus of the evaluation is on outputs and outcomes only. In addition, the major factors influencing the achievement or non-achievement of the objectives are identified and discussed.

- **Efficiency**
  A measure of how economic resources (funds, expertise, time, etc.) are converted into results. Due to the difficulty of evaluating this criterion, the results are appraised at output level only, as they can easily be observed and measured and are/were under the control of the RSA. Where applicable, outcomes are included in this analysis as well.

- **Impact**
  Positive and negative, intended or unintended, lasting and indirect changes effected by the RSA at outcome and impact level.

- **Sustainability**
  The continuation of benefits from the intervention (= project) of the awarded organisations (winners, runners-up and finalists) after completion of RSA’s support (financial and coaching).

The evaluation entailed:

- structured interviews with ten jury members, half of them having participated in more than five consecutive award cycles and familiar with both phases of this engagement. The other half joined with the launch of phase 2 and participated until the termination of RSA;

- a survey in which eight out of the total of 12 finalists and winners of phase 2 participated. In addition, interviews were held with five of them;

- interviews with four coaches of the last RSA cycle (2019).
### Evaluation criteria

<table>
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<tr>
<th>Phase and aspects</th>
<th>Relevance</th>
<th>Effectiveness</th>
<th>Efficiency</th>
<th>Impact</th>
<th>Sustainability</th>
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- **Objective, beneficiaries, process and means**
  - High project submission rates, around 150 per year
  - Amount of grant matched the needs
  - Narrowing the focus of the award made the selection of finalists more straightforward

- **Effectiveness**
  - 78% of applications on average passed focus match
  - Good geographic balance (27% Africa, 46% Asia, 24% Latin America, 3% Rest of the World)

- **Efficiency**
  - Introduction of an online platform improved processing of application
  - Resource-intensive process for grant allocation with around 20% of these costs relating to promotion

- **Impact**
  - Over 300,000 direct and 1.2m indirect beneficiaries (from 16 of the 24 projects that provided this data)

- **Sustainability**
  - 90% of organisations (22 of 24) are still operational
  - 68% of projects (15 of 22) have been replicated or scaled up


- **Announcement, application and selection**
  - 83% of jury members considered the change of focus towards early-stage social enterprise more relevant
  - 60% of applications passed the focus match (more criteria than in phase 1)
  - Good geographic balance but changed proportions: 52% in Africa, 34% Asia, 12% Latin America, 2% Rest of the World. An engaged network in Africa explains the shift towards that region
  - Focused questionnaire that helped establish the basis for a smart business plan

- **Effectiveness**
  - 4,500 intermediaries in the network to support the calls for applications
  - Resource-intensive process for grant allocation
  - Score 8.25* given by applicants to the process

- **Impact**
  - 2 applicants considered the effort too high in relation to financial gain
  - Jury member estimated the selection process to be laborious and too resource-intensive

- **Sustainability**
  - Around 300,000 benefited directly from the finalists in this phase
  - Surveyed finalists scored improvements through coaching as follows:
    - management capacity: 8.8*
    - governance: 7.9*
    - financial sustainability: 7.3*
    - quality of delivery: 8.3*

- **Coaching and funding**
  - 100% of surveyed finalists considered the network and coaching to be more important for them than the grant
  - 9* is the score that was given to the coaching received
  - 9* is the score given to the quality of the network by finalists

- **Effectiveness**
  - 100% of the surveyed finalists considered the coaching process inspiring, thought-provoking and constructive
  - 100% of surveyed finalists who participated in the last round in 2019 valued the peer-to-peer learning that took place and suggested launching an alumni network (a development possible only post competition)
  - 70% of jury members considered the coaching effective and valuable
  - 10% of the jury members considered it too short (6 months for finalists, 3 years for winners)

- **Sustainability**
  - Around 500,000 benefited directly from the finalists in this phase
  - Surveyed finalists scored improvements through coaching as follows:
    - management capacity: 8.8*
    - governance: 7.9*
    - financial sustainability: 7.3*
    - quality of delivery: 8.3*
  - 100% of finalists and winners are still operational, most of them could scale up their solution
  - 88% were able to leverage more funds (grant and investment) after the RSA
  - A community of practitioners (finalists, winners and coaches) was created and remains active

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* *Score between 1–10 was used (1 is low and 10 high)*

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**Colour codes:**
- good ability to evaluate
- medium ability to evaluate
- limited ability to evaluate
The key thing was the jury culture. The key learning is how you build a team. The culture must be open, transparent, super critical, to the point. This is where it gets kind of difficult because disagreements occur and you need to be bold enough to say that while the projects were all nice and we all want to be supportive, some of them are not viable, and that needed to be discussed in this round.”

David Bresch, Chairman of the Jury, 2010–2019

I thought it was a very great process and very entrepreneur-friendly from the beginning. I had applied for a lot of programs before and I thought that the application process was complete but not overbearing. It was a manageable workload, it did not take an enormous amount of time, but it asked the right questions.”

Antonio Aquilar, President of CASSA, Guatemala – Winner RSA 2018

We – the participants of the final coaching – are still in contact with each other and the coaches. This kind of relationship and peer-to-peer collaboration is powerful. I really enjoyed the coaching week and it would have been valuable if we could have joined an alumni network right after being selected as finalist. Maybe such a network is worth more than the prize money. It is really difficult to find the right network and having such an award helped us to collaborate easily. The togetherness is really valuable, which gave us time and room to discuss.”

Shana Fatina, Director of Tinamitra Mandiri, Indonesia – Finalist RSA 2019

All early-stage businesses always need funding and coaching, so from a broad perspective the concept made sense. However, when you dig down how many start-up benefits from coaching and funding are there significantly in general? Conceptually it makes sense, but in terms of impact it is not likely that this approach will have significant impact in the long term. The approach helps a start-up, but it is unlikely to have a significant impact on the scale of what the RSA wanted to achieve.”

Jumaane Tafawa, Kenya – Jury Member 2016–19

One of my thoughts and concerns, however, is that we cannot apply the same coaching to these social entrepreneurs as to people working in a highly professional, international company. To be honest I think that the colleagues who managed the coaching gained a lot but sometimes I was wondering if the applicants were a bit overwhelmed by the way we manage these processes from our very professional perspective. So, we have to be very attentive to their environment and context and not impose the Swiss Re way of thinking on them that they cannot apply in their cases. I know there was other coaching as well, but whenever Swiss Re colleagues provide coaching, I think one needs to pay attention to that.”

Pierangelo Franzoni, Zurich – Jury Member 2016–19

The need to accelerate our progress motivated us to apply for the award, besides the prize money. We had been making slow but steady progress, and we felt this was not enough. We needed an impetus to propel us to do much more, simply because the issues with water deserve to be addressed.”

Samuel Rajkumar, Director FFEM, India – Winner RSA 2019

In the area that I also covered as a coach – risk management – the coachees had to provide information during the application process, so they had to think about that very early on in the process. Nevertheless, spending half a day during the coaching on that subject helped them self-reflect a lot: What are my key risks? Are they really only operational? When you look at the applications, mainly operational risks have been mentioned. And I think this is the value of spending time half a day and thinking about risks not only in their organisation but also hearing from others what they come up with and learn from them.”

Edith Wolfram Kisseleff, Switzerland – Jury Member 2018–19, Coach 2016–19

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Edith Wolfram Kisseleff, Switzerland – Jury Member 2018–19, Coach 2016–19

The RSA made me think differently – I mean in a broader way – about my project. The main focus was on sustainability and processes, which was a different approach than compared to other schemes in which you only get a grant.”

Alphonceina Kanyeto, Programme Manager of MSABI, Tanzania – Winner RSA 2016
Learnings and recommendations

Target group and prize money

• Due to the fact that early-stage projects bear many risks, and positive revenue might be generated only in the long term even though positive social impact can be achieved immediately, it is very difficult for social enterprise start-ups, in particular those operating in emerging markets and developing economies, to acquire seed money, even relatively small amounts. An award scheme such as the RSA, providing grants in the range of USD 25,000 – 75,000, could add the most value for those organisations that either want to check the feasibility of the planned intervention (= proof of concept) or are in the prototyping phase (see Fig. 6). According to the feedback of the finalists of RSA cycle 2016–19, the money they received to further develop their business model prior to the final selection was also helpful for them to bridge their funding gap.

• Though the awarded grant money might be relatively modest, its release should be results or milestone-based. This is less a risk management measure than an effective action to promote anticipatory financial planning. In some countries, the legal form of the grantee can be a challenge or even a barrier to transfer of the grant money. Therefore, it is advisable to consult internationally active financial institutions.

Submission and evaluation

• The terms of submission of an award or a similar small grant scheme for social enterprise start-ups must be transparent and comprehensible. A question-based guidance and the underlying evaluation criteria including their weighting have to be logical, thus helping an applicant to submit the proposal in a complete, consistent and structured way. Ideally, through the compilation of the submission, a self-critical reflection about the project’s goals and feasibility will be provoked. Questions on project-specific social, environmental, regulatory as well as operational and technical risks are essential both for the applicants to deduce mitigation measures and for the grantor to identify potential default risks.

• Besides asking for a definition of the target groups and a description of their needs being met by the intervention, a project proposal should ideally contain some plausible estimates of the numbers of potential direct and indirect beneficiaries.

• A web-based submission and assessment tool is very useful, allowing applicants to enter their proposals in a user-friendly, well-guided and safe way, also given that the submission should not be exclusively in writing, e.g. visualisations, audio and video recordings should be uploadable. b) independent experts (e.g. an international and interdisciplinary jury) to assess the submissions based on clearly defined criteria and c) administrators to generate statistical evaluations and specified reports.

• Composition of assessors and their involvement is crucial. Multi-actor, multi-professional and multi-cultural perspectives will help to cover and discuss the relevant questions and subjects related to a submission, and finally to make a broadly-based and fair decision on whether or not to support a project. In addition to the assessment of the written submissions, it is advantageous to conduct interviews with the applicants.

It is always nice to be able to respond to questions on calls instead of in written form when possible so the back and forth becomes more of a discussion and less of an ongoing writing process. This is also a way to build relationships with the reviewers.”

Sasha Kramer, Executive Director SOIL, Haiti – Finalist RSA 2018

“Possibly, but I don’t see how one could work around this. Maybe going away from written to video applications, but then those with a better ability to do good storytelling in such a setting have an advantage. There might be other options to written applications, but these are most likely not easy. On the other hand, one could possibly recognise their engagement and motivation and get a better ‘feeling’ for the entrepreneur in a video (‘human factor”).”

Chris Zurbrügg, Switzerland – Jury Member 2007–2019

Figure 6

Ideal focus of an award scheme for social enterprise start-ups

Process of social innovation

Prompts

Proposals

Promises/Proof of concept

Prototyping

Scaling

Systemic change

Funding stage

Pre-seed

Seed

1st/2nd stage

3rd stage: Bridge financing

Asset-based financing

Focus

Target 1: Social impact

Target 2: Revenue

Time
Worldwide, only 2.9 billion people (or 39% of the global population) used safely managed sanitation services in 2015.

892 million people still practiced open defecation in 2015.

Evaluation of the ReSource Award

Non-financial support and value-added

- Providing tailor-made coaching during and ideally after a multi-stage application process is useful for the applicant and the donor: With the thought-provoking questions and the learnings gained, the potential grantees can further develop their business models and improve their fundraising abilities, which will help them to further evolve; the grantor can make a final funding decision on more mature, balanced and comparable proposals.
- Effective coaching requires a certain continuity in order to build up trust between the participants, which is a key success factor. A suitable coach for social enterprise start-ups with operations in emerging and developing countries is characterised firstly by a genuine interest in others’ businesses and in interacting with coachees in an inspirational, constructive yet unobtrusive way. Other qualifications include social and professional competences and having relevant experiences in living and doing business in foreign countries, ideally in developing countries, which helps to relate to the coachees’ contexts. Peer-to-peer learning, community of practice and other dynamic network-based knowledge exchange platforms might emerge from the initial “classic” coaching, ideally supported by the beneficiaries themselves.
- As part of the application process and through the engagement of the different actors involved, the applicants will gain access to formal and informal networks of potential facilitators and promoters such as coaches, advisors, scouts and sponsors. Donors can actively provide access to their networks in addition to their financial commitments and the provision of coaching.

As a coach of social entrepreneurs, you have to make them aware of the different universes they are working in and the challenges they face bridging those universes. I assume that this can sometimes create a stretch inside themselves. On the one hand they need to work with the people in their culture, from the education level, the way they speak and think about work which may be different from how we think about work – and the entrepreneurial, economic requirements they have to make this work. I think this can create a stretch and one needs to make them strong in this.”

Heike Rudolf von Rohr, Coach of RSA finalists 2016–19, Switzerland

Related to the question if the combination of grant giving and coaching is useful:

“You do evaluations either because of your finance people and (tax) regulations. Or you do it – and this is more interesting – with a focus on learning. And I think coaching, peer-to-peer learning and these kinds of network knowledge management schemes are very useful for evaluation. So, I really liked that approach that was taken in the last (4) years with the finalists and winners.”

Minu Hemmati, Germany – Jury Member 2002–2019

“Offering only grants is not sustainable and I believe that to build a long-living social business there are more mechanisms involved than just only providing grants. The award (or grant) can be an attractive aspect for the innovative projects to find you, but regarding the long-term sustainability, other perspectives should also be considered. For example: Address the scalability of the business.”

Christina Ulardic, Coach of RSA finalists 2016–19, Switzerland
Acknowledgment

The Board of Trustees and the Management of Swiss Re Foundation would like to express its appreciation to all those who have substantially contributed to the development and success of the seventeen cycles of International ReSource Award (2002–2019), in particular to following personalities11

<table>
<thead>
<tr>
<th>External jury members</th>
<th>Swiss Re internal jury members</th>
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<tr>
<td>David Brosch*</td>
<td>Claude R. Etique</td>
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<td>Ernst Brugger</td>
<td>Pierangelo Franzoni</td>
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<td>Ulrich Burd</td>
<td>Stefan Huber</td>
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<td>Shirley Xiaolei Duan*</td>
<td>Edith Wolfram Kisselef*</td>
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<td>Minu Hemmati*</td>
<td>Angela Marti (†)</td>
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<td>Xiubin Li</td>
<td>Loredana Mazzeolani Neglén</td>
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<td>Jussara Lima Carvalho</td>
<td>Ivo Menzinger</td>
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<td>Francois Muenzer</td>
<td>Martin Weymann</td>
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<td>Carmen Revena</td>
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<td>The Nature Conservancy (TNC), United States (2002–2013)</td>
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<tr>
<td>Albina Ruiz*</td>
<td>Initiator of the Resource Award</td>
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<tr>
<td>Grupo Ciudad Saludable, Peru (2015–2019)</td>
<td>and author of the publication</td>
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<tr>
<td>Thomas Streiff</td>
<td>Thomas Streiff</td>
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<td>BHP – Brugger and Partners, Switzerland (2002–2019)</td>
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<td>Jumaane Tafawa*</td>
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<td>Rebecca Tharme*</td>
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<td>Independent Advisor, United Kingdom (2014–2019)</td>
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<td>Bernhard Truffer</td>
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<tr>
<td>Eawag – Swiss Federal Institute of Aquatic Sciences and Technology, Switzerland (2004–2005)</td>
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<td>Chris Zurbrueg*</td>
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11 In alphabetical order. Information on the institutional affiliation and/or position refers to the status at the end of the commitment with ReSource Award. In bracket the period of the commitment. Personalities interviewed for this publication are marked with an asterisk.

Between 1980 and 2015, the average annual number of deaths due to water unsafe for human health amounted to **780,000**
Acknowledgment

Patrons, RSA 2002–2014

Walter Anderau
former Member of the Executive Board, Swiss Re, Switzerland (2002–2005)

Kader Asmal (†)
former Member of Parliament and former Minister of Water Affairs and Forestry, South Africa (2002–2010)

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Julia Marton-Lefèvre
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Achim Steiner
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Executive Coach, Coaching4Excellence, Switzerland (2019)

Christina Ulardic
Managing Partner, Astanor Ventures, Switzerland (2019)

Markus Zimmermann
Founder, NDR Consulting GmbH, Switzerland (2019)

Surveyed and interviewed finalists and winners, RSA 2002–2019

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former Director of Strategy of Fundación Natura Bolivia (Winner RSA 2010)

Antonio Aquilar
President of CASSA, Guatemala (Winner RSA 2018)

Jonathan Barcant
Managing Director of Vetiver TT, Trinidad and Tobago (Finalist RSA 2016)

Shana Fatina
Director of Timamtra Mandiri, Indonesia (Finalist RSA 2019)

Alphoncina Kanyeto
Programme Manager of MSABI, Tanzania (Winner RSA 2016)

Sasha Kramer
Executive Director of SOIL, Haiti (Finalist RSA 2018)

Oscar Manuel Núñez
Chairman of Fundación Defensores de la Naturaleza (Winner RSA 2002)

Samuel Rajkumar
Director FFEM, India (Winner RSA 2019)
WINNER 2002

Since 2001, FDN and WWF Central America have worked together in designing Guatemala’s first large-scale water-based funding scheme linking downstream water use with upstream forest conservation. The highly biodiverse cloud forests of the Sierra de las Minas reserve – with an area of approx. 240,000 hectares and with over sixty rivers originating from it – provide essential freshwater resources to surrounding communities for domestic consumption as well as to industrial, agricultural and hydroelectric users. Uncontrolled deforestation, cattle ranching, and agricultural expansion have become a serious threat to freshwater availability and downstream coastal marine ecosystems.

Approach and Innovation

Through a negotiation process with industries, representatives of organised groups and local authorities, water users’ fees were established. These fees go into a Payment for Environmental Services (PES) scheme, the "Water Fund" used for compensating forest owners and other parties for their conservation activities. With this Water Fund, the long-term quality of water as well as its availability for production and employment generation is to be ensured within the project area.

Achievements

In 2014, FDN published the lessons learned from the first successful phase (2002–2012) of the Water Fund, which formed the basis for launching the second phase (2015–2020). The Water Fund continues to operate and has a substantial support from Coca-Cola through its local bottling company (ABASA). Annual financial support was increased, based on hydrogeological studies demonstrating to ABASA that the water in their wells originates from the Sierra de las Minas Biosphere Reserve. Thanks to these payments, 350 hectares of pristine forest located in the core zone of the reserve are protected. Other local enterprises and associations relying on the water resources of Sierra de las Minas Reserve, such as paper mills, power producers and irrigated agriculture, are contributing annual fees between USD 5,000 and 25,000.

Another important sector of investment are 6 municipalities that support the Foundation and the Water Fund in the prevention and control of forest fires, but above all in the care of their water sources to supply drinking water to their population.
Challenge
The Galaundu Pokhare watershed lies approximately 100 km west of Kathmandu and has a high population density. The watershed covers an area of 27 km² and is home to 9 000 people living from intensive agriculture. It is characterised by steep hills and is heavily affected by land and water degradation. Poverty as well as a lack of adequate education are widespread amongst the rural population. Natural resource degradation in the middle mountains of Nepal is typical for large sections of fragile agricultural steep lands in the Himalayan region. The problem is largely rooted in high population densities, which lead to an acute scarcity of available per capita resources, lack of adequate education and overall poverty.

Approach and Innovation
To overcome the outlined challenges, soil erosion and river sediment loads have been reduced and the local population has been introduced to agroforestry practices identified as effective and innovative interventions. The application of integrated technologies and practices has contributed to the improvement of water quality and availability, thereby providing a basis for improving land output. The measures included protection of forests and grazing lands, planting trees and restoring degraded water sources such as small springs, channel off-take systems and water collection ponds.

Achievements
Community-based organisations were involved in running training programmes and awareness campaigns for the local population, providing it with an opportunity to acquire the skills needed to manage forest, land and water resources in a sustainable way. The training programmes and awareness campaigns have helped the local population to safeguard their sustenance in the long term. They have made an important contribution to reducing soil erosion and improving water availability and quality. The project was successfully concluded in 2015 according to the report on NAF’s website, which refers to the ReSource Award.
The Piracicaba River basin is located in the southeast of Brazil, north of São Paulo. 55% of its sources are used to supply the São Paulo greater metropolitan area, which is the largest industrial centre in Brazil and has a fast rate of urban growth. The area is suffering from high water consumption and a series of conflicts over water use. In order to recover and protect local water sources, several regional municipalities have formed the Consórcio PCJ, a private non-profit organisation.

**Challenge**

The Consórcio PCJ has established an investment programme that calls for the contribution of one Brazilian centavo (= 0.01 real) per m3 of consumed water in the Jaguari River basin, which later forms the Piracicaba River. Further measures initiated by the consortium include watershed management, environmental education and the protection of water springs and streams, so that the river basin may meet the future water demand in the region.

**Approach and Innovation**

The record of the project in promoting water quality and availability is significant. Similar activities were taken up and proved successful in two other sub-basins in the region. The simultaneous involvement of as many stakeholders as possible at all levels and the implementation of technical solutions and best practices have been crucial for the project’s success. PCJ is still active in promoting and facilitating multi-stakeholder based solutions to protect the Piracicaba River basin.

**Consórcio PCJ**

**Brazil**

**FOCUS**

Water availability

**PRICE MONEY**

USD 15 000

**MEASURES**

Nature conservation, capacity building, financing solutions, agricultural practices

**BENEFICIARIES**

Community residents

**STATUS**

concluded, SE ongoing
Quang Nam Province is located in the centre of Vietnam, 860 km south of Hanoi and 865 km north of Ho Chi Minh City. It is laced with rivers, estuaries, lakes and lagoons. The upland A’Vuong is one of the primary watersheds feeding the Thu Bon River system in the mountainous Quang Nam Province, which supports the subsistence and income of an estimated one million people. These watershed areas, the ecosystem and the species are under great threat.

The livelihood of the people in Quang Nam Province is highly dependent on natural resources. Hunger and poverty have taken their toll on the region, leading to the overexploitation of forest areas and water resources. The result has been an increase in seasonal droughts, flooding and erosion. To stop the degradation of the critical A’Vuong watershed, the local government launched a scheme for decentralised land management that links watershed priorities and resource management. The project has allocated indigenous land and resource rights to local institutions. These institutions have the skills and legal recognition to steward the forests and rivers over the long term. With this set-up the communities across Quang Nam’s watershed forests have received the means to improve their social, economic, cultural and environmental living conditions.

The project laid the foundation for many processes that continued. The provincial government endorsed the forest land allocation programme and to date has developed land use plans for 39 communities throughout Quang Nam Province. Through a partnership with the Asian Development Bank and Electricity Vietnam, a payment system for watershed management has been implemented. The idea is to give part of the revenue from the electricity generated by the A’Vuong dam back to the communities for forest management and protection activities as well as livelihood development grants. Further, the concept of Payments for Forest Environmental Services (PFES), which was tested in the A’Vuong watershed through the RSA, became a key policy of Vietnam by virtue of Decree 99/2010/ND-CP, passed in September 2010.
The Dabie Mountains are located in Anhui Province, north of the Yangtze River in Central China. They rise from 90 to 1,700 metres above sea level and cover an area of almost 100,000 km². This is one of the most underdeveloped regions in China. Population pressure, unsustainable farming methods and planning errors have led to the overexploitation of available natural resources. The result is a decline in soil fertility due to water and soil erosion, which in turn fills the riverbeds and reservoirs with large sediment deposits. This increases the risk of floods during periods of intense precipitation.

The cultivation of vetiver, a fast-growing grass species, was identified as an appropriate solution to reduce water surface flow and soil erosion and to improve slope stability. The objective of the project was to help farmers to protect the natural resources and increase agricultural production by providing training on vetiver characteristics and planting, propagation, pruning and management, and application of multiple uses of pruning. Further, integrated and income-generating agroforestry systems were introduced, such as establishing vetiver-protected high quality commercial trees and vegetable production on terraces in combination with small animal husbandry.

The project introduced sustainable natural resource management in the Dabie Mountains by means of simple and cost-effective measures. Demonstrations of how to cultivate a combination of crops and vetiver were given in easily accessible locations throughout the region. In a follow-on project with the support of CVN, a nursery was established in Yuexi County of Anhui Province, which became a production base for planting materials for the whole Dabie Mountain area in Hubei. In total, around 1,000 smallholders received training in vetiver cultivation between 2003 and 2007.
The Puzhehei watershed is situated in Yunnan Province in the far southwestern part of China. The catchment area of the watershed encompasses the villages of Xianrendong and Puzhehei in the upper reaches of the Pearl River, Wenshan Prefecture, one of the most scenic karst areas of China. More than half a million tourists visit the eighty shallow plateau lakes around Puzhehei every year. However, increasing pressure on water resources due to human excrement, animal husbandry and intense agriculture has led to a dramatic drop in the quality of the Puzhehei watershed.

In response to the described challenges, a comprehensive master plan for protecting the Puzhehei Lake watershed was developed and approved by Wenshan Prefecture in May 2004. The awarded project was a major cornerstone of this plan that included measures to reduce further pollution of the lake and its adjoining wetlands. It was strongly supported by the Yunnan Environmental Protection Bureau (YEPB) and the local government authorities. Together they created the Puzhehei Management Committee in order to promote innovative eco-sanitation, dual waste management and biogas production from livestock faecal matter in Xianrendong and Puzhehei. The measures aimed at creating higher living standards, heightened awareness of watershed protection and a reduction of water pollution.

By 2006 the measures were successfully implemented, and some of the original goals had even been exceeded: instead of 20 more than 100 urine-diverting toilet units were installed in the two villages. The eco-sanitation installations were accepted by the farmers, and water pollution has been reduced. The continuous involvement of all affected stakeholders right from the beginning was a key success factor. Building on this successful introductory project, similar activities were launched at regional and even at national level. Furthermore, the eco-sanitation concept was being integrated into the new five-year plan of Wenshan Prefecture. In addition to the funding from Swiss Re, the activities received further support from a German NGO, with a special focus on animal waste treatment to prevent the pollution of ground and lake surface water, and on the effective replacement of coal with biogas in local households.
**Winners 2004**

**Challenge**

Covering an area of 300 km², the Tomebamba watershed in the southern Andean region of Ecuador comprises different climate and vegetation zones. New road construction and subsequent economic development in the unprotected upper region of the Tomebamba watershed have negatively affected ecosystems and water quality.

**Approach and Innovation**

Through a participatory process involving the local communities and their organisational bodies in the upper part of the Tomebamba watershed, the local utility ETAPA introduced a programme for sustainable resource management in the fragile ecosystem of the area. Three main categories of measures were initiated: ecological dry sanitation, communitarian natural resource management focusing on water protection, and the reintroduction of alpacas. The latter measure was aimed at solving the serious problem of accelerated soil erosion and water contamination due to intensive cattle production.

**Achievements**

Twenty-nine dry toilets are installed and in use, while about 100 local families have received advice and guidance on dry sanitation. More dry toilets are being constructed in the second phase of the project. The families using the dry sanitation toilets are the main promoters of the system, which has gained increasing acceptance. The communitarian natural resource management has embraced capacity building for local leaders and beneficiaries as well as environmental education for school children. Production and plantation of trees and other native plants, soil conservation and rehabilitation of the Tomebamba River are the other main activities that have been successfully taken up as per project plan. ETAPA has erected fencing along more than 10 km of riverbanks and has set up 15 family orchards and 320 agroforestry plantations.

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**Empresa Pública Municipal de Telecomunicaciones, Agua Potable, Alcantarillado y Saneamiento de Cuenca (ETAPA)** Ecuador

<table>
<thead>
<tr>
<th>FOCUS</th>
<th>PRICE MONEY</th>
<th>INTERVENTION</th>
<th>BENEFICIARIES</th>
<th>STATUS</th>
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<tbody>
<tr>
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<td>USD 50,000</td>
<td>Agricultural practices, capacity building, water management infrastructure</td>
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<tr>
<td>Access to sanitation</td>
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<td>(eco-sanitation)</td>
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**FOCUS**

Safe Drinking Water
Access to sanitation

**PRICE MONEY**

USD 50,000

**INTERVENTION**

Agricultural practices, capacity building, water management infrastructure (eco-sanitation)

**BENEFICIARIES**

Waters residents, downstream water users

**STATUS**

concluded
The Peñablanca Protected Landscape and Seascape in the municipality of the same name is located in the Northern Sierra mountain range on Luzon Island, around 500 km north of Manila. In 2002, forest cover had receded by 6% and agricultural areas expanded by 17% since 1998. A hydrological functions assessment also revealed that there was increasing variability in the stream flow of the Pinacanauan River that runs through the project area. Further analysis through simulation modelling suggested that the declining forest cover was directly influenced by the observed changes in stream flow patterns.

**Approach and Innovation**

After comprehensive investigations and stakeholder dialogues it was decided to introduce a Payment for Environmental Services (PES) scheme in the project. A PES programme calls for the beneficiaries of certain environmental services to make payments to those providing the services. Thus, to be sustainable, such a programme requires the beneficiaries to be directly involved. This has been a key element of the project. Furthermore, upstream communities were instructed on forest patrolling and monitoring and provided with the necessary information. Training on sustainable upland farming practices and the introduction of alternative livelihood programmes were recognised as crucial flanking measures.

**Achievements**

Implementation of the PES scheme and its support measures ran according to plan, which was designed to address key development and conservation concerns such as the need to find mechanisms that promote watershed conservation while at the same time strengthening rural livelihoods and alleviating poverty. Great emphasis was also placed on strengthening capacity and awareness and on promoting dialogue and negotiation among different stakeholders. However, the most critical point was the implementation of the PES scheme itself. Even after the Environmental Services (ES) buyers and sellers had been identified and provided with extensive information about the scheme, it was still difficult to find ES beneficiaries willing to actually pay for the services they use.
**KivenK Development, Bamenda and Jakiri Council**

**Cameroon**

**RUNNER-UP 2005**

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<tr>
<th>FOCUS</th>
<th>PRICE MONEY</th>
<th>INTERVENTION</th>
<th>BENEFICIARIES</th>
<th>STATUS</th>
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<tbody>
<tr>
<td>Water availability</td>
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<td>Regulation &amp; governance, monitoring, capacity building, water management infrastructure</td>
<td>Community residents</td>
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<tr>
<td>Safe Drinking water</td>
<td></td>
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</table>

**Challenge**

The Ntunir watershed lies in the Jakiri Council municipality of Province, Cameroon. It spreads over 700 hectares of moorland in the foothills of Mount Kilum. It harbours the sources of the Vekovdzen River, which feeds the Jakiri town water supply. In addition, the 4 municipalities Nkar, Mantum, Wainamah-II and Ngwatang have traditionally taken their water supplies from different catchment areas in the watershed. Increasingly, cattle breeders and short-term crop farmers laid claim to the watershed to improve their livelihoods. As a result, the vegetation has been overgrazed or burnt annually, in turn leading to pollution, reduced water tables and conflicts. The local people have had to cope with increased water shortages, waterborne diseases, land ownership questions and grazing conflicts between farmers.

**Approach and Innovation**

In response, Jakiri Council set up a plan in 2004 to protect the Ntunir watershed. The plan has been incorporated into the council’s “Water resource management policy and strategy” document. The local NPO mandated by Jakiri Council to implement this plan, KivenK Development, first decided to protect four spring water catchments within the project area from contamination and to increase their yields. KivenK sensitised the stakeholders of the four municipalities and trained 27 water management committee leaders on corrective and preventive measures, in order to secure reliable water supply in terms of quality and quantity. Several forums and workshops on the legal framework of land ownership have been held for the community officials. In addition, educational material and guidelines on catchment protection, hygiene and sanitation as well as monitoring tools have been produced. To coach and monitor implementation of the activities, the municipalities nominated eight caretakers. Together with 16 grazers they have undergone intensive training on catchment area protection practices such as applying structural and bioengineering techniques. The caretakers have also been trained in conflict management. This is of high importance because there are frequent disputes between the residents of the villages and the farmers who let their cattle graze on the land.

**Achievements**

Most of the planned activities have been carried out according to plan. Almost all live fences have been constructed and are being monitored by the caretakers. Several training courses on water catchment protection and conflict management for caretakers have been held. The manual on “Effective Water Catchment Protection in the Cameroonian Western Highland Watershed” and the guidelines on “Impact Monitoring” and on “Water Sanitation and Hygiene for Rural People” have all been printed and distributed. The focus is now on collecting fees from the water users benefiting from improved supply. Since this has not been successful so far, the organisation has had difficulty paying the caretakers on a regular basis.
**Gruppo di Volontariato Civile (GVC), Suches River Watershed Bolivia**

**FOCUS**  
Water availability

**PRICE MONEY**  
USD 50,000

**INTERVENTION**  
Water management infrastructure, agricultural practices

**BENEFICIARIES**  
Smallholders

**STATUS**  
concluded

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**Challenge**

The Suches River watershed is located in Bolivia’s Camacho Province in the Department of La Paz. It descends from the Eastern Cordillera of the Andes at about 5,000 metres above sea level, collecting rainwater from the watershed, and flows into Lake Titicaca. The climate in the area is characterised by low temperatures during the night, intense solar radiation during the day and periodic frosts in autumn and winter. The seasons are very distinctive, with a marked contrast between the dry period and the rainy season. Average annual rainfall is approximately 728.1 mm and is concentrated in the months from December to March. The average yearly temperature is 9 °C, giving way to some 88 days of frost per year.

**Approach and Innovation**

Archaeological evidence has shown that pre-Columbian indigenous populations had developed techniques well adapted to the physical conditions of their environment, with irrigation channels (sukakollos) in the areas prone to flooding and terraces (taqanas) on the hillsides, and that they had designed sophisticated systems of water collection, irrigation, rotation, combined cultivation and genetic selection of plant varieties. These techniques allowed them to mitigate the effects of the Andean climate and achieve abundant harvests. The project has sought to restore the Andean vision of equilibrium between humans and the environment. Studies have shown that the landscape of the Suches River watershed allows the reintroduction of irrigation channels and terraces and their subsequent use for intensive farming. The main focus has therefore been put on achieving a balance between economic development and social tradition.

**Achievements**

During the project, activities have on the whole been progressing well, but have faced some delays in certain areas. Irrigation channels for two hectares of cultivation land have been built. Furthermore, two communal nurseries have been set up, along with 29 drinking water wells and 20 night corrals for livestock.
**Ethiopian Rainwater Harvesting Association (ERHA) Ethiopia**

**FOCUS**  
Water availability

**PRICE MONEY**  
USD 80 000

**INTERVENTION**  
Water management infrastructure (rainwater harvesting), capacity building, regulation & governance, nature conservation

**BENEFICIARIES**  
Community residents

**STATUS**  
concluded

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**Challenge**

The Borana Zone of southern Ethiopia is a semi-arid rural region, where communities depend on small-scale agriculture and livestock farming. Either activity is highly constrained by water availability, as there are no perennial rivers. Rainfall varies strongly both in terms of time and place. As a result, more than 80% of the region’s inhabitants have no access to safe drinking water. Children in the region have the lowest school enrolment rate in the country, because their help is needed for domestic tasks and collecting water.

**Approach and Innovation**

Water harvesting has proved to be an attractive alternative in areas where other sources of water supply have little potential, either because they are remote or because groundwater is inaccessible or not potable. The project initiated by the Ethiopian Rainwater Harvesting Association (ERHA) aims to improve access to a reliable source of water for at least 10 communities in the Borana Zone. An innovative combination of infrastructures to harvest rain and surface run-off water is to ensure a sufficient supply of water for drinking and productive uses in the short as well as the long term. The project helps to protect regional water resources by making optimal use of available water supplies, enhancing catchment water retention capacity, reducing soil erosion and flooding, and preventing ground water depletion.

**Achievements**

Five sand dams, with a total storage capacity of approximately 15 000 m³, were constructed, directly benefiting at least 1 000 people living in close proximity to the watershed. In addition, several rainwater harvesting tanks, each with a storage capacity of 60 m³, will provide five to six communities living further away from the watershed with sufficient clean drinking water to bridge the bi-annual three-month dry periods. The communities have been involved in the project from the beginning, being sensitised to land degradation and measures to improve water efficiency. All communities within the project area have been involved in the identification of the sites for the first batch of sand dams and the rainwater tanks. Furthermore, the project parties have signed a partnership agreement on providing local organisations with training on the construction and implementation of sand dams. A communal water management committee has been formed and is being trained in operating and maintaining the rainwater harvesting infrastructure. Awareness and education programme for communities on hygiene, water and environment conservation as well as sustainable agriculture are ongoing.

In 2008, based on the experiences of this project, RAIN Foundation and Acacia Water have developed a manual entitled “A practical guide to sand dam implementation. Water supply through local structures as adaptation to climate change”. This manual is designed as a “growing document” which will be improved and updated with experiences in implementation of similar projects in Ethiopia and Burkina Faso.
### Challenge

The health of the people living in the Rio Grande Valley and rural livelihoods in this region are being threatened by the use of illegal poisoning agents to harvest fish, shrimp and crayfish. River poisoning is a deliberate way to stun fish and shrimp for easier harvesting. Increased demand from hotels and restaurants for native freshwater shrimp and crayfish has been driving the use of pesticides and other poisons in fishing, as this is the easiest way to maximise one’s catch. Due to the difficult economic conditions, local people rely on this source of income, but the practice has led to a decline in the amount of fish in the area.

### Approach and Innovation

The Nature Conservancy Jamaica Country Programme (TNC) is addressing the problem through a combination of three key activities: a community awareness campaign on the dangers of river poisoning both to people and the environment; the mobilisation and training of community members to monitor their own waterways and prosecute poisoning events; and the development of sustainable harvesting methods, guidelines and viable alternatives to river poisoning. A framework for solving the problem of river poisoning and other unsustainable inland fishing practices is to be established by June 2009, based on on-the-ground partnerships, community engagement and the application of sound scientific knowledge.

### Achievements

TNC started its multi-tiered approach with desk research on the ecology and life history of harvested species, which has now been concluded. A milestone plan for the public education and awareness campaign has been produced. Under the umbrella of the Environmental Stewardship Partnership set up by the project team and the Management Institute for National Development, a training programme has been developed to improve the enforcement of laws concerning river poisoning. Initial courses have been held for local administrators and communities as well as the judiciary. Furthermore, a brochure on the prevention of river poisoning has been completed and will be distributed at community events. A memorandum of understanding, describing the commitments and functions of TNC, the fisheries division and the Jamaica Conservation and Development have been signed. Potential methods of managing and improving existing stocks of harvested aquatic species, such as mullets and shrimps, have been shared with local communities through on-site workshops.
The Mountain Institute (TMI) China

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<tr>
<th>FOCUS</th>
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<th>INTERVENTION</th>
<th>BENEFICIARIES</th>
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<tr>
<td>Access to sanitation</td>
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**Challenge**

Shangri-la Town with 48,000 inhabitants is located in a global biodiversity hotspot with 1.5 million tourist visitors each year. Sangna Reservoir provides drinking water supply to the town, as well as regulating water supply to an important wetland and providing irrigation water to more than 3,700 ha of arable land. There are five villages in the Sangna catchment, with 210 households and a population of more than 1,000 people. Average annual per capita income is about USD 115. Assessment of the watershed found that water flow and quality is primarily impacted by poor forest management, human waste and garbage in these five communities. Forest impacts are driven by collection of fuel wood, and pollutants by the lack of toilets and garbage collection points.

**Approach and Innovation**

The Mountain Institute (TMI) works with local government agencies to train stakeholders in identification of watershed priorities and improved natural resource management practices. Based on the jointly developed watershed management plan and coordinated by a multi-stakeholder management committee, the Resource Award grant and contributions of local government serve to implement community sustainable management practices comprising afforestation, promotion of alternative energy systems, improvement of water supply and sanitation systems as well as introduction of garbage collection points. Further, related community natural resource and watershed management regulations are developed with the stakeholders of the watershed, who are also involved in the evaluation of the activities and results. The experiences will be shared with other water source managers in the region.

**Achievements**

The Sangna Reservoir Community Watershed Management Committee was established at the beginning of the project and is responsible for project implementation, household participation and stakeholder engagement. Rules and regulations for the management of the watershed have been agreed upon by the stakeholders. As part of the project, a total of seven four-in-one biogas systems were installed successfully. After initial hesitation of the local people, they started to show interest, especially after operation of the installed biogas systems. TMI signed a contract with the People’s Government of Shangri-la and a local construction company to formalise work and facilitate local ownership and responsibility. At the end of 2009 the government began developing an integrated watershed management plan with funding for refuse collection and recycling points.
Lauru Land Conference of Tribal Communities (LLCTC) Solomon Islands

**FOCUS**
Water availability

**PRICE MONEY**
USD 75,000

**INTERVENTION**
Capacity building, regulation & governance, financing solutions (sales of certified timber)

**BENEFICIARIES**
Community residents

**STATUS**
concluded, SE ongoing

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**Challenge**
Chivoko is an isolated tribal community in north-west Choiseul (traditionally called Laru), Solomon Islands, accessible only by sea and by river. It is one of the poorest communities in the Pacific. All areas surrounding Chivoko have been completely logged, and adverse impacts are starkly obvious. The fragile reef and coastal ecosystems are dependent on the inland forest watershed system. They are already under customary protection, but international logging companies still try to fell timber.

**Approach and Innovation**
The goal of the project is to provide a watershed service assessment integrated into the forest development planning. The Chivoko population is aware of the negative consequences of wholesale logging. Led by the tribal elders and with the help of the Lauru Land Conference of Tribal Communities (LLCTC) they have won a High Court injunction in preventing the logging of the forest. To dispense with the logging companies from the Chivoko province, the people explored an alternative development opportunity which includes sustainable forest management practice. With the support of the community, the LLCTC identified key zones of watershed importance and demarcated community land and forest boundaries. The resulting Chivoko Watershed Forest Management Plan is to be incorporated in a directive at the provincial level. The LLCTC will further provide the community with training in sustainable forest management practice and will develop and assist the Chivoko Community Cooperative to find alternative income generation possibilities.

**Achievements**
The initial activities focused on community participation and joint decision-making of the Chivoko people to ban deforestation of the Chivoko forest by big logging companies. The local decisions are enshrined in the provincial-level directive and enact the provisions of the Chivoko Watershed Forest Management Plan developed during the project. The critical catchment zones have been demarcated. Furthermore, a 3D-modeling of the area of the Chivoko island has been developed by the community members. This model will help to clearly map out the resources of the Chivoko people and to draw a collaborative watershed plan that provides a pathway for sustainable forest development practices by the community. The community also voted for the total ban of large scale logging. This ban has been signed by the chiefs of Chivoko. In 2015, the first export of eco timber after years of patience is a dream come true for the community of Chivoko to show the new generation that they can selectively harvest their forest and earn more income and engage in other activities in the forest apart from unsustainable logging.
Challenge

The rural population of the Kahmard District, Afghanistan, depend on very little fertile land on the bottom of the valleys. The farmers’ main income comes from the sale of potatoes and fruit such as apricot, walnut, almond and apples. Black cumin or hing are collected in the mountains and are sold expensively as non-timber forest products. These products are under threat by uncontrolled use of natural resources: wheat production and overgrazing by an increasing number of sheep and goats. This leads to degraded vegetation in the mountainous areas to an alarming extent. Wood is extensively used for heating but is becoming very scarce through the usage of the mountain pastures in a destructive way. All these factors are leading to an increase of floods, destruction of irrigated land and ultimately a reduction in income of the farmers. In view of predicted climatic changes (higher probability of heavy precipitation events and of prolonged dry spells), improved watershed management is all the more important to reduce the occurrence of floods on the one hand and to ensure more stable base flows on the other.

Approach and Innovation

Considering the manifold challenges, Helvetas with support from the International Centre for Integrated Mountain Development (ICIMOD) launched a community-based watershed management project focusing on short- and long-term solutions. The project placed major emphasis on capacity building of Community Development Committees to manage the watersheds in a sustainable way by integrating conservation activities and approaches to improve livelihoods through people’s participation and collaboration among different institutional and social actors. The project was embedded in Helvetas’s “Disaster Risk Mitigation” (DRM) project in two districts in Afghanistan (Kahmard and Tala-wa-Barfak) and linked to the “Improving Livelihoods of Rural Communities” (ILRC) project funded by the Swiss Agency for Development and Co-operation (SDC).

Achievements

By the end of the project, several hundred loose-stone check dams, more than 150 small soil embankments, underground reservoirs, several plastic-lined earthen reservoirs and water ponds had been constructed. These activities were accompanied by contour trenching, which demonstrated very useful water conservation techniques along with the planting of fruit trees and non-fruit trees. This helped ensure that the participating communities are safe from shrub cutting and grazing. Guards have been hired who are responsible for monitoring. A community bakery has also been established in the valley to prevent shrub consumption at household level.
**Fundación Natura Bolivia**

**FOCUS**  
Water availability

**PRICE MONEY**  
USD 120,000

**INTERVENTION**  
Nature conservation, financing solutions, capacity building

**BENEFICIARIES**  
Upstream communities, downstream water users

**STATUS**  
concluded, SE ongoing

**Challenge**

Amboró National Park, which provides drinking water to several million residents of Santa Cruz and supplies irrigation water and flood protection to the fertile lowlands, is increasingly threatened by illegal land incursions. Encouraged by farmers’ unions and local leaders, landless migrants from the Bolivian Altiplano are entering the buffer zone and the park to clear “water producing” cloud forests for agriculture. Santa Cruz City Water Cooperative (SAGUAPAC) forecasted that drinking water supplies will run out as a result of the illegal deforestation.

**Approach and Innovation**

With the funding of Swiss Re, Natura Bolivia helps five local communities to capitalise Municipal Water Funds to maintain drinking and irrigation water supplies, mitigate and adapt to climate change, and improve livelihoods in the Santa Cruz Valleys. With the five Water Funds, designed and established with municipal leaders and local community members, and the provision of in-kind compensation packages, upstream landowners are supported to meet the opportunity cost of conservation and to enhance their incomes.

Major activities include identification of land parcels important for water provision, promotion of the scheme to landowners, and negotiation of in-kind reciprocal deals such as beehives, fruit trees and improved pasture. Further, conservation parcels are measured and mapped, seed capital is deposited into dedicated water fund accounts, compensation packages are delivered, and results are monitored. The project will conserve 15,000 ha of forest in the buffer zone of Amboró National Park. In addition to maintenance of water supplies and a reduced risk of flooding, the reciprocal agreements will contribute to poverty alleviation by providing an alternative source of income, such as honey production. There will be approximately 1,000 upstream beneficiaries. By ensuring local management of the Funds, local institutions such as municipalities and water cooperatives will be strengthened. Approximately 5,000 downstream water users will benefit from more secure water supplies.

**Achievements**

By the end of the project, several hundred loose-stone check dams, more than 150 small soil embankments, underground reservoirs, several plastic-lined earthen reservoirs and water ponds had been constructed. These activities were accompanied by contour trenching, which demonstrated very useful water conservation techniques along with the planting of fruit trees and non-fruit trees. This helped ensure that the participating communities are safe from shrub cutting and grazing. Guards have been hired who are responsible for monitoring. A community bakery has also been established in the valley to prevent shrub consumption at household level.
**Challenge**

This project is situated in the Akole and Sangamner Talukas (Blocks) of the Ahmednagar District of Maharashtra, India. Both areas represent different agro-climatic zones, are culturally and ethnically distinct and represent different levels of disadvantage and integration in the wider economy. The reason for choosing two different agro-climatic and demographic zones is because together they represent the bulk of vulnerable, disadvantaged and poor communities in rainfed agrarian India.

**Approach and Innovation**

The main purpose of the project is the sensitisation and organisation of communities to harvest rainwater across the watersheds, to conserve and utilise it effectively and re-generate the local environment. A key element of the intervention is the development of an agro-meteorological based decision support systems for farmers to enhance agriculture production and adapt to the impact of changing weather patterns by providing farmers with real-time management advisories based on weather conditions affecting crops in their village or locality. Another crucial measures is the creation of youth leadership that can use the tools to think, plan and execute a strategic path while co-creating a desirable and sustainable future for the community.

**Achievements**

In 2019, according to the comprehensive annual report of WOTR, 90 automated weather stations – providing the data for the agro-meteorological based decision support systems – are functioning across Maharashtra, benefitting more than 10,000 farmers who received over 300,000 crop weather advisory SMSs during the reporting year. Around 250 minor harvesting structures (such as using loose boulders, stone bunds) and major harvesting structures (check dams, earthen bunds or gabions) have been built by the communities.
Regional Environmental Centre for Central Asia (CAREC) Kyrgyzstan

WINNER 2011

FOCUS
Water availability

PRICE MONEY
USD 100,000

INTERVENTION
Financing solutions, nature conservation, regulation & governance

BENEFICIARIES
Upstream communities, downstream water users, tourism

STATUS
concluded

Challenge

The Chon-Aksuu River watershed is situated on the north shore of Issyk-Kul Lake, in the Issyk-Kul oblast, Kyrgyzstan. Due to variable conditions, this 50,000-hectares area includes many ecosystems such as desert, dry steppe, mountain pastures and different types of forests from an altitude of 1,600 metres at the lake shore to 3,500 metres in the Alatau mountain range. The Chon-Aksuu river watershed is impacted by human activities, especially in the upstream lands, especially agriculture and tourism. These are leading to the degradation of certain ecosystems – mainly pastures and forests – and are thus impacting the water resources of the river basin generally and the river flow specifically: low water storage capacity, major erosion, higher quantity of suspended sediments in the river, and frequent water shortages during the summer period. These upstream degradations lead to several problems in the exploitation of downstream lands, such as water shortages during the irrigation period and blocking of pipes due to the suspended sediments in water.

Approach and Innovation

The project aims to set up a Payment for Ecosystem Services (PES) scheme linking upstream and downstream populations. By changing their practices, upstream farmers can improve the conditions of the water resources. As they are beneficiaries, the downstream population will furnish the incentive, i.e. the payment for ecosystem services provided by the upstream farmers. For this purpose, a fund has to be created and managed by a multi-stakeholder coordination committee involving buyers, sellers and local authorities. The contracts signed in the frame of this PES scheme will allow the sustainable management of water resources in the watershed and will also provide new income opportunities for upstream farmers. To ensure the long-term sustainability of the PES mechanism, to protect additional forests of the watershed, and to create new income, the proposed project is to be combined with a Reduction of Emissions from Deforestation and Degradation (REDD) scheme. By adopting new practices in forest management, forest owners and users will increase the watershed’s water storage capacity. They will also benefit of carbon emissions credits under the United National Framework Convention on Climate Change.

Achievements

According to CAREC’s 2013 and 2015 annual reports, the PES mechanism has been successfully introduced in Kyrgyzstan as well as in other Central Asian States. PES combined with REDD proved to be a transparent system for the provision of environmental services through conditional payments to voluntary service providers. These approaches are innovative in the region, and the findings have been disseminated at local and national conferences, workshops and trainings. Experiences and best practices have been shared with relevant stakeholders through guidelines and manuals. As a result of this pilot, a CAREC expert was engaged by the Kyrgyzstan State Agency for Environmental Protection and Forestry (SAEPF) Working Group to assess opportunities to mainstream PES in national legislation.
## Challenge

In rural Honduras, only a third of water delivery systems provide continual service, and less than 14% deliver potable water. Deforestation and the degradation of rivers, caused primarily by unsustainable agricultural practices and the expansion of pastoral land use, have caused extensive water contamination and unreliable flow, thus compromising the health and food security of rural villagers. The beneficiary communities live in a particularly dry region with little economic opportunity. Average annual family incomes here are 25% less than the national average – and political instability has resulted in a lack of a national strategy to address the sustainability of water resources.

## Approach and Innovation

The project focus is to build the capacity of a model water association that can lead its communities in sustainable micro-watershed management. It brings a comprehensive, community-based approach where rural villages come together to improve water access and quality, enhance water resource conservation, and foster community awareness and action for protecting water sources. In doing so, the project aptly demonstrates that well-organised communities can serve as reliable stewards of resources to establish, maintain and enhance potable water access, offering a replicable model to be applied in other water-insecure, rural communities.

## Achievements

EcoLogic reports on its website that with the prize money of the ReSource Award, it was able to facilitate the establishment of the Association of Water Boards of the Southern Zone of Pico Bonito National Park (AJAASSPIB), an umbrella organisation representing 27 community water boards that promotes a comprehensive management approach addressing ecosystem health and infrastructure needs from the bottom up. The establishment of voluntary payments for water services — a type of modified payment for ecosystem services (PES) programme — has been critical to the success of AJAASSPIB and the project. Households in each of the member-committees pay community-determined user fees to their local water council, with funds administered by an elected treasurer. With the support and facilitation of EcoLogic, water councils are directing a portion of their revenues to environmental funds to support reforestation and conservation and patrol of water catchments.
Kounkuey Design Initiative (KDI) Kenya

**FOCUS**
Safe Drinking water
Access to sanitation

**PRICE MONEY**
USD 150,000

**INTERVENTION**
Capacity building, water management infrastructure (eco-sanitation)

**BENEFICIARIES**
Community residents (slum dwellers)

**STATUS**
concluded, SE ongoing

**Challenge**
Kibera, the largest slum in Nairobi, sits on the tributaries of the Ngong River and Nairobi Dam in the centre of this rapidly growing city. The settlement suffers from a highly polluted environment due to the lack of water, sanitation and solid waste infrastructure, and its main watercourses serve to transport polluted storm water and human and domestic waste. The people who co-exist with these polluted watercourses, which continue into the eastern reaches of the Nairobi River Basin, are exposed to severe health and economic effects.

**Approach and Innovation**
The award recipient, Kounkuey Design Initiative (KDI), has been building “productive public spaces” (PPS) in Kibera since 2006. Building a PPS involves reclaiming unused or unsafe urban areas, primarily waste dumps on polluted rivers, by removing environmental and social hazards, providing needed amenities and developing enterprises that ultimately raise the residents’ income. With the prize money of the ReSource Award, in a first phase, the focus is on understanding the watershed – including engagement with other NGOs and regional institutions, compilation of information and preparation of workshops and training materials on watershed issues. The second phase will then be devoted to engaging the community. The third phase is aimed to reclaim the river: 3 PPS projects are implemented including river bolstering, environmental remediation, water supply, sanitation facilities and community buildings. While these three small projects on their own may not solve all of Kibera’s water management problems, even small improvements in local conditions will be widely felt.

**Achievements**
PPS proved to be a community-driven, sustainable urban system that functions collectively to mitigate environmental hazards, provide public space amenities, build social networks, and develop small business enterprises. Some of the products that the KDI has developed for and with the communities in Kibera are community parks, social halls, greenhouses, water kiosks and sanitation spaces. Apart from PPS building, KDI also works on settlement scale issues through projects on water and sanitation and urban flooding. With the prize money of the ReSource Award, KDI produced in particular a strategic flood risk assessment toolkit tailored to the needs of institutional stakeholders that incorporates social and economic impacts as well as resident perspectives. KDI provided physical evidence of how the toolkit can help in planning physical infrastructure by identifying and constructing two local flood protection schemes in collaboration with community groups. These projects incorporated green space as a buffer to flooding. The toolkit can be used to make sound spatial planning decisions for flood management not only in Kibera and Nairobi, but also in other rapidly urbanising cities around the world.
Perkumpulan Rincong  Indonesia

FOCUS  
Water availability

PRICE MONEY  
USD 40,000

INTERVENTION  
Regulation & governance, capacity building, nature conservation

BENEFICIARIES  
Community residents

STATUS  
concluded, SE ongoing

Challenge
Under the 2006 Moratorium on Logging, logging in Aceh is illegal. Should this Moratorium be withdrawn, there would be considerable potential for increased logging to take place by logging companies with permits to deforest specific areas. Some of these areas include customary forests used by the Mukims, the traditional and indigenous communities in Aceh. Further logging of this sort can be reduced or prevented by stopping companies from gaining new or withdrawing existing permits. This would require strengthening the authority of the Mukim institutions.

Approach and Innovation
Rincong is a membership-based non-governmental organisation working to support Mukims in Aceh to manage natural resources in a sustainable way. Funded by the Resource Award, Rincong ran this project for nine months from June 2012 to February 2013, aiming to establish customary-based community watershed management in Aceh through development of a model in one of the communities, Mukim Beungga. Through a participatory process working alongside the community of the Mukim, the project aimed to support the Mukim institution in gaining recognition of their customary forest from local government and to develop a management plan and customary regulations which will ensure protection of the watershed on which the community’s livelihoods depend.

Achievements
Project activities have included the development of a detailed implementation plan with the relevant stakeholders and several awareness-building initiatives. The District Mukim Association and the department responsible for Mukim and villages identified the most urgent regulatory gaps relating to natural resource management. Based on this analysis and an inventory of the status of natural resources within the Mukim, a customary forest management plan as well as customary regulations for natural resource use – especially for the management of timber and non-timber forest products as well as wildlife and watersheds – were developed and approved. In addition, several schoolteachers were trained in environmental education, and over 200 children participated in an environmental activity day.
Challenge

The landscape of the Mahafaly Plateau in south-west Madagascar – the region’s breadbasket, which includes the Manakaravavy watershed and Maniry Valley – is notable for its rich biodiversity, its cultural specificity and the dire poverty of its population. The health and welfare of the Manakaravavy River and its tributaries’ watersheds determines the sustainability of development actions in the area. Uncontrolled agricultural activities are threatening the watershed and the biodiversity of nearby Tsimanampetsotsa National Park.

Approach and Innovation

The WWF Madagascar and Western Indian Ocean Programme Office will work with local communities and authorities to manage and protect the Manakaravavy River, its riverbanks and surrounding forests. The project will support the sustainable management of natural resources, particularly water resources, by integrating local multi-stakeholders in the management process and decision-making relating to watershed management. The project will develop tools and systems that will use water rationally and sustainably: appropriate technologies and improved agricultural techniques. Multiple water users will be structured in a water user association (a common practice in Madagascar) and will contribute financially to the long-term operation and maintenance of the irrigation system and of watershed management actions. This proposed project will adopt a holistic approach to test and demonstrate a watershed management model which includes payment for watershed services. The project and its outcomes directly impact the livelihoods of about 1,100 farming households through improved irrigation technologies and agricultural techniques. Livestock production will also benefit from efforts to increase the capacity of grazing land within the watershed. An additional 500 hectares of rice and inter-seasonal crops will come into cultivation, increasing wage labour and contributing to food security. It should also give farmers an incentive to stay in their communities, helping to reduce harmful migration to nearby Tsimanampetsotsa National Park.

Achievements

A watershed management plan was developed to identify and restore sensitive areas. During the project phase, several kilometres of riverbed were cleared to maintain the waterway’s flow, facilitating irrigation of the developed rice fields. Over 100 irrigation kits were installed, allowing women to develop counter-seasonal vegetable cultivation as an income-generating activity. A grazing area management plan was established, and over 100 hectares of grazing fields were improved with firewalls and hay storage facilities. Farmer-to-farmer exchanges, training and demonstration of smart water management practices and the cultivation of adapted seeds were implemented, thanks to a new exchange centre funded by the project. The centre also houses a solar fruit dryer as well as threshing and weeding equipment.
**Local Initiatives for Biodiversity, Research and Development (LI-BIRD) Nepal**

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<td>Capacity building, financing solutions, nature conservation, erosion control</td>
<td>Upstream communities, downstream water users, tourism</td>
<td>concluded, SE ongoing</td>
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</tbody>
</table>

**Challenge**

With 6,000 rivers and 5,000 lakes, Nepal is rich in water resources. The country’s hydropower generation, agriculture, ecotourism and recreation all depend on biodiversity and other ecosystem services. Safeguarding these public goods requires action at the community and, increasingly, the landscape level. The watersheds of Begnas and Rupa Lakes with their rich fauna and flora are a popular tourist destination north of Pokhara in central Nepal. More than 10,000 households call the region home.

**Approach and Innovation**

LI-BIRD has long worked in the area of Begnas Lake in the field of agricultural biodiversity management. In a successful pilot project, it demonstrated the potential of a Payment for Watershed Services (PWS) mechanism to address watershed-related conflicts in Nepal. This project included a context and stakeholder analysis in the Begnas watershed to facilitate the formation of a PWS mechanism and a collective vision and outreach strategy for communicating ecological cause-and-effect linkages to stakeholders in watershed communities. Sustainable lake management will reduce water runoff, siltation and turbidity and increase retention of water in the soil and natural springs during the dry season, allowing local fish and wetland bird populations to recover. Local communities will benefit economically from ecotourism and sustainable agriculture as well as from watershed service payments. Overall levels of nutrition, health and education are expected to improve, as there are relations between upstream and downstream communities that share water resources.

**Achievements**

By end of 2017, the project was implemented in the watersheds of Begnas and Rupa Lakes by engaging and mobilising local governmental and private organisations/stakeholder and local community groups in the establishment of a sustainable mechanism of Payment for Watershed Services (PWS). The conservation fund is established and is being piloted through the efforts and annual contributions of service sellers in the area. The fund is owned by the local metropolitan city and the stakeholders as a sustainable model. The information centre set up with the collaboration of multi-stakeholders has become one of the major attractions for students and many national and international visitors to learn about agricultural and other forms of biodiversity of the landscape, and it has also become an appropriate outlet to promote local crops seeds and products for supporting local livelihoods.
## Challenge

Since Brazil’s agricultural expansion began in the 1960s, more than 50% of the area encompassed by headwater basins of the Pantanal and over 20% of its floodplain have been altered by harmful land use change and inefficient land use practices. Land use change, mainly deforestation and conversion of native vegetation to planted exotic pasture and crops, has increased siltation of streams and altered hydrologic balance within watersheds, causing declines in water quality and quantity.

## Approach and Innovation

Wildlife Conservation Society (WCS) is working with trusted municipal personnel and local partners from all segments of society to conduct watershed assessments and land use planning at municipal scale. It will also train capacity builders to promote sustainable land use practices, such as preserving and rehabilitating native vegetation in headwater basins, to set up model properties to demonstrate these practices and share the best approaches with neighbouring municipalities. To ensure its model becomes self-sustaining, WCS is training municipal personnel to maintain a land use planning database, promote sustainable practices and raise additional funds for operational continuity.

## Achievements

Drawing on proven approaches to promoting sustainable land use on individual properties, WCS scaled up impacts to extensive watersheds of Corgunho through its municipal land use planning that helps protect and restore the ecological function of streams and native vegetation areas whilst promoting sustainable land use. Government leaders, environmental officers and members of local landowner organisations from Corgunho continue to work with WCS to develop a municipal land use plan and a spatially-explicit investment strategy for promoting sustainable land use practices and watershed protection.
Challenge

Sustainability and reliability of water access is one of the major challenges in the water sector. Despite a quadrupling of funding for water and sanitation since 2002, 53% of Tanzania’s population does not have access to clean water. It has been estimated that 30–50% of water points in certain regions of the country are broken and abandoned. Attempts to increase the coverage and sustainability of water infrastructure have been undermined by top-down delivery and management models, use of expensive foreign technologies and a lack of skilled mechanics at the community level. In such an environment, repair and rehabilitation are not only cheaper than creating new water points but also more ecological and protective of water resources.

Entrepreneurial approach and Innovation

MSABI developed an integrated solution to provide sustainable, reliable and lifelong water access. MSABI is validating and regionally scaling the programme “Pump for Life”, a subscription-based system for water point maintenance and repair. Customers receive proactive (monthly) maintenance and reactive repair services in exchange for a monthly or annual subscription premium. The premium can be paid through mobile phone money transfer services, making it accessible to people in remote areas with no access to conventional banking.

A decentralised network of private-sector mechanics, who are situated in hub locations to maximise operational efficiency, maintain and repair the water points. A key element of Pump for Life’s operations is its advanced surveillance-response system. Based on locally available information and communication technology, it monitors premium payments, the distribution and functionality of water points, spare part usage and water point history. MSABI draws on elements of modern subscription and data-driven systems from other sectors, an approach which is expected to be a game changer in guaranteeing water access reliability relative to conventional systems.

Achievements

Pump for Life went through a significant transformation since it successfully applied for the ReSource Award. The programme was restructured from a charitable into a for-profit model and became the largest programme within MSABI, the umbrella organisation. In 2020, the Pump for Life network comprised 16 decentralised mechanics and 175 service subscribers, paying on average a monthly premium of USD 5–15, thereby assuring access to safe drinking water for 36,800 beneficiaries. 100% of water points subscribed to the system are functional and, if defective, can be repaired within 24 hours. After validation of the new business concept, Pump for Life is ready to scale and expand into other East African regions that face similar challenges.
F3 Life Kenya

**FOCUS**
- Water availability
- Water quality

**PRICE MONEY**
USD 25,000

**INTERVENTION**
- Erosion control, agricultural practices, financing solutions

**BENEFICIARIES**
- Smallholders

**STATUS**
- concluded, SE ongoing

**Challenge**
Smallholder farming in zones that are prone to soil erosion is a significant source of non-point source pollution such as sediment, nitrogen and phosphorous. These forms of pollution can kill downstream aquatic animals and plants and make downstream urban water treatment costlier. Despite standing to benefit from new, more sustainable farming practices, smallholder farmers are reluctant to adopt them, primarily because the up-front incentive to change is insufficient. Traditional forms of watershed management have failed to address this problem, and natural resource managers have struggled to find sustainable financing tools.

**Entrepreneurial approach and Innovation**
F3 Life started off as organisation providing flexible credit and technical farming advice to smallholder farmers in developing countries. Its loan terms and credit-scoring system incorporated requirements for soil and water conservation. By offering loan agreements with higher credit limits and lower interest rates to borrowers who adopt specific conservation practices, F3 Life created an innovative link between smallholder financing and environmental protection.

**Achievements**
Since participating in the award, F3 Life underwent a major reorganisation, splitting up into three different ventures, which also led to a shift in the original organisation’s core activities. Building upon its experiencing and know-how, F3 Life now helps agricultural lenders include requirements for improved watershed management into loan terms and supports buyers of outgrower produce to set watershed management requirements in offtake agreements. With the support of a grant, the company is now looking for its first clients.

Two further organisations were founded out of F3 Life: GreenFI Systems helps “unbankable” communities set up their own community-lending facilities and incorporate sustainability requirements in their loan terms. Sustainifi is an easy-to-use, technology-based impact verification and reporting tool for investors in and managers of land. Both projects received funding from a donor that facilitates projects for sustainable forests and land use.

While aiming to influence different aspects of the financing system, all three companies interlink financial flows with environmental protection, thereby advancing the embeddedness of sustainability in agricultural finance.
In Kenya, around two thirds of urban residents lack adequate sanitation. Diarrhoea claims the lives of 17,100 children there each year, whilst hundreds of thousands more are left undernourished and unable to fully contribute to society later in life. Poor sanitation systems also have a damaging effect on the local environment, water supply and downstream economies. In Nairobi, over 60% of waste is dumped untreated into waterways.

Entrepreneurial approach and Innovation
Sanergy, founded in 2010 at the Massachusetts Institute of Technology by David Auerbach, Lindsay Stradley, and Ani Vallabhaneni, locally manufactures and franchises its high-quality, low-cost waterless sanitation facilities, branded as Fresh Life Toilets, to a network of local operators in Nairobi’s informal settlements. The toilets are run as pay-per-use businesses by entrepreneurs or added-value services by landlords for their tenants. The company provides support and training to help operators thrive and runs a daily collection service, removing the waste from the community and transporting it to the Sanergy processing facility. The waste is then converted into insect-based animal feed, organic fertiliser and biomass fuel briquettes. Those agricultural and energy products support a sustainable economy and provide Kenyan farmers with high-quality, locally made inputs for healthier soil and wealthier farmers.

Achievements
Since its engagement with the ReSource Award, Sanergy was able to scale its business as its customer base grew, the number of employees increased, and the organisation was able to install a growing number of sanitation facilities in urban slums. In 2020, more than 130,000 residents benefit from safe sanitation provided by Sanergy on a daily basis. The organisation has been successful in accessing other financial sources and now plans to expand its network of toilets and further enhance cost-efficiency in order to reach the tipping point where its model becomes attractive for government investment.
**Vetiver TT** Trinidad and Tobago

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<tr>
<td>Water availability</td>
<td>USD 25,000</td>
<td>Erosion control, agricultural practices, (water management infrastructure)</td>
<td>Smallholders, community residential</td>
<td>concluded, SE ongoing</td>
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</tbody>
</table>

**Challenge**

A twin island country situated off the northern edge of the South American mainland, the Republic of Trinidad and Tobago has long thrived on fossil fuels, leading it to embrace large-scale construction and commercial activities whilst discouraging the development of a sustainable economy. Despite having ideal conditions for year-round farming, for example, Trinidad and Tobago imports more than 90% of its food.

Volatile oil prices are forcing Trinidad and Tobago to diversify, and its citizens are waking up to the environmental fallout of industrial development and consumerism. There are still pristine places in the country, but environmental catastrophes such as decimated hillsides, quarries and landfills, which leak leachate into water supplies and waste into rivers and seas, serve as stark reminders of the environmental works and transitions needing to be undertaken.

**Entrepreneurial approach and Innovation**

Vetiver TT EES Ltd has developed a “soft engineering” technique which uses vetiver grass to address diverse environmental challenges in tropical climates. When implemented according to the Vetiver System (VS), hedgerows slow down runoff, and capture and recharge groundwater, also stabilising slopes, protecting against erosion, conserving soil and water, and cleaning contaminated land and water through phytoremediation. Vetiver TT EES Ltd serves clients including homeowners facing soil movement issues, commercial construction companies, as well as public infrastructure and community development projects.

Vetiver grass (Chrysopogon zizanioides), the key component of VS, offers a green and cost-effective way to rehabilitate the degraded hillsides of Trinidad and Tobago’s Northern Range, where forest fires rage every two to three years in the dry season and subsequent rains wash away topsoil and often cause flooding downstream. Because it is certified sterile and non-invasive by the USDA, the grass poses no risk when introduced to new areas, yet costs as little as 15% to 20% of “hard engineering” alternatives.

**Achievements**

Vetiver TT has been able to grow since the organisation applied for the ReSource Award and has realised more than 80 residential projects as well as commercial and public works projects, including infrastructure (drainage and road) protection and coastal erosion and quarry rehabilitation. The company is now also working through its NGO partner IAMovement to expand regionally to four more Caribbean countries through a community and green business development model called the Vetiver Education and Empowerment Programme (VEEP). As it expands, Vetiver TT ESG Ltd is evolving its model to build capacity to serve private and public engineering projects in the Caribbean, while supporting regional community and government sustainable and climate resilience development programmes.
**FOCUS**
Safe Drinking water

**PRICE MONEY**
USD 25 000

**INTERVENTION**
Water management infrastructure, capacity building, (financing solutions)

**BENEFICIARIES**
Community residential

**STATUS**
concluded, SE ongoing

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**Challenge**
According to the World Health Organization, more than 30% of Ugandans lack reliable access to clean water. The situation is not much better for the rest of the population, with 60% of people reliant on boiling water to drink and 10% on purchased bottled water.

In Uganda, water-borne illnesses remain the top cause of death among children under the age of 5. This sobering figure does not even take into consideration the economic impact of diarrheal diseases due to loss of productivity and demand for healthcare, the opportunity costs of fetching water and wood for boiling water or the environmental impact of burning the wood collected. Moreover, as a method of water purification, boiling poses a risk of cross-contamination from dirty containers as the water cools.

**Entrepreneurial approach and Innovation**
Ceramic water filters are effective, lightweight, portable, relatively inexpensive, free of chemicals and easy to use and maintain. In Uganda they have the added advantage of being culturally and socially acceptable thanks to a longstanding tradition of storing drinking water in clay pots. The social enterprise SPOUTS of Water produces locally a ceramic filter called Purifaaya, which can serve an entire household for two years and, at USD 22 per unit, is the most affordable durable household filter on the Ugandan market, paying for itself in just three months by eliminating the fuel costs of boiling water.

To enable distribution throughout the country, SPOUTS segments the market by income level, selling to households and working with NGOs to provide clean drinking water to refugee camps, schools, prisons, clinics and other public spaces. In urban and peri-urban areas, it sells Purifaaya filters in retail shops patronised by households that can afford the upfront cost. SPOUTS reduces barriers to purchase by offering financing options through partnerships with microfinance institutions and Savings and Credit Cooperatives.

**Achievements**
SPOUTS of Water began with a simple idea of visionary students and a pile of clay in 2011. Less than ten years later, the organisation succeeded in building a factory with a capacity to produce approximately 100 000 ceramic filters to work towards its overall goal of providing 5 million Ugandans with access to safe water by 2025. With the support of various donors and in collaboration with local implementing partners, around 350 000 people benefit from Purifaaya filters today. Through regular impact studies, SPOUTS of Water evaluates and quantifies its programs to ensure its activities generate the desired impacts.
Challenge
Sub-Saharan Africa has recently experienced below-average rainfall due to climate change, resulting in below-average food supplies. Nearly 70% of the water taken from rivers and groundwater goes into agricultural irrigation. At the same time, demand for protein and fresh produce is rising within Sub-Saharan Africa’s population, which the United Nations expects to increase from 1.2 billion today to 2.5 billion by 2050. As traditional farming methods depend on reliable rainfall, other approaches are needed to avert famine.

Entrepreneurial approach and Innovation
Applicable in horticulture as well as aquaculture, aquaponics (AP) can deliver high-quality crops year-round as well as better yields than field-based farming. It also uses as much as 50% less water than drip irrigation systems and is independent of rainfall.

Clearwater Farms uses aquaponics for synergistic production of horticulture and fish. The enterprise buys from smallholders or cooperatives, helping them generate income and access local markets, and sells to supermarkets, hotels and restaurants. It also offers a return for investors who finance the development of the enterprise.

Achievements
With the support of the ReSource Award, Clearwater Farms proofed its concept in the Zambian market and the reliability of its sales channels to end customers. The organisation provided trainings to smallholders in the management and maintenance of the aquaponic systems. Clearwater Farms’ success contributed to increasing the interest and awareness of aquaponic farming in Zambia. The company was also exploring the production of oil crops in order to expand into other revenue-generating activities and scale its system. Clearwater Farms was working towards fulfilling the full potential of aquaponic farming in the region under the management of a local entrepreneur on the ground.

Clearwater Farms Zambia

FOCUS
Water availability

PRICE MONEY
USD 75,000

INTERVENTION
Water management infrastructure, capacity building, agricultural practices

BENEFICIARIES
Smallholders, tourism

STATUS
concluded
**Challenge**

Haiti’s sanitation crisis is acute. The country has the world’s highest rate of childhood diarrhoea, which accounts for 16% of the deaths in children under age five there, and Haiti also recently faced a cholera epidemic that sickened more than 7.5% of the population and killed more than 10,000 people. At the same time, Haiti faces environmental challenges, with rapidly declining agricultural production, the world’s highest soil erosion rates and a malnutrition rate of 45%. Both food security and environmental rehabilitation depend on restoring soil fertility.

**Entrepreneurial approach and Innovation**

Customers of the social business SOIL rent a locally produced ‘EkoLakay’ household toilet for approximately USD 2.50 a month. Each week SOIL sanitation workers collect the toilet wastes and deliver a fresh supply of the carbon material used for “flushing”. The wastes collected are taken to a waste treatment facility to be turned into agricultural-grade compost, which is used to restore health to Haiti’s soils.

SOIL is dedicated to rigorously evaluating results and sharing lessons learned. It has partnered with a range of academic institutions and fellow social businesses in the sanitation sector as well as with the Haitian government’s sanitation authority. All its work is open-source and freely shared, as SOIL is eager for other organisations and enterprises to replicate its technologies and business models.

**Achievements**

With the support of the ReSource Award, SOIL prepared to scale its business and developed a risk management plan. The transformation into a fully financially self-sustaining organisation is an ongoing process. In partnership with the Swiss Re Foundation, SOIL strengthened its staff members’ entrepreneurial mind-set, underwent some organisational restructuring and continued to develop its market. Successful grant applications provide the required funding while SOIL is working towards the establishment of a public-private partnership with the Haitian government to make public finance available for waste treatment.

SOIL built the first waste treatment facility in Haiti in 2009 that transforms more than 50 metric tons of human waste into organic compost each month that is utilised for local farming, reforestation and other purposes. With its 70+ employees, SOIL provides EkoLakay toilets to more than 6,000 urban residents in Haiti, and demand continues to grow.
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**Challenge**

With a fast-increasing population, food demand will increase by 60–80% for the estimated 450 million people in West Africa. In Nigeria with 184 million inhabitants, 70% of rural people are subsistence smallholder farmers, producing 90% of Nigeria’s food on plots wholly dependent on rainfall. Depending on the stage of farming, the weather remains the largest source, both directly and indirectly, with 20–80% of annual expected yield lost. Despite the significant reliance on agriculture, Africa has the world’s least developed weather, water, and climate observation network. This increases the vulnerability of farmers to weather stresses, negatively impacting productivity. Farmers lack trust in local forecasts and are unable to plan or make decisions based on them. Low literacy rates mean that forecast messages can be difficult to understand, so providing communication that is accessible to all is vital.

**Entrepreneurial approach and Innovation**

Ignitia uses information and communication technology to enable its customer base of 1.3m small-scale farmers across 5 countries in West Africa to increase yields using the most accurate weather-related information available. Ignitia synthesises complex tropical physics phenomena, leveraging cutting-edge numerical modelling, remote sensing and machine learning techniques, and boils it down to an actionable, SMS or app-based accurate and localised weather forecast for farmers. When the seasonal outlook predicts drier conditions, users can buy drought-resistant seeds, which are expensive but help ensure crop survival. When the daily forecast predicts heavy rain, they can delay using fertilisers or spraying pesticides to keep such expensive inputs from being washed away. Better-informed decisions improve the farmers’ yields and, ultimately, their livelihoods. Ignitia has struck partnerships with mobile network operators in Ghana, Mali and Nigeria through which farmers can sign up and pay just two cents a day to receive GPS-specific weather information by SMS. It also partners with agricultural organisations to test and iterate its product and enter new markets. The company can scale up quickly by keeping costs low, making sign-up simple and using an SMS platform in a region where mobile phones outnumber people.

**Achievements**

Ignitia has over 1.3 million customers in 5 countries across West Africa. The underlying forecasting model has been tested and proven to have more than twice the accuracy. Ignitia has built ground-breaking expertise in the atmospheric physics and meteorology of West Africa through continuous R&D from 2010. Over the last 4 years, Ignitia is estimated to have impacted more than 4 million farmers, their families, and other customers, resulting in the estimated yield generation of more than 4.2 million metric tons from roughly 5.5 million ha of land. Independent research establishes that Ignitia’s forecasts increase yields (average of 65%), and incomes (average USD 476 per season) for a farmer. 86% of farmers using Ignitia’s services experienced yield increases, with 98% saying they changed their agricultural practices based on the forecasts. These adjustments helped to reduce crop loss throughout the farming cycle, avoid wasting costly inputs and water, and prevent environmentally harmful agrochemical runoff.
**CASSA Guatemala**

**Focus**
- Water availability
- Safe Drinking water
- Access to sanitation

**Price Money**
USD 75,000

**Intervention**
Water management infrastructure, financing solutions, (nature conservation)

**Beneficiaries**
Community residents

**Status**
concluded, SE ongoing

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**Challenge**
Guatemala's worst health and environmental problems stem from poor housing. The country’s housing shortage forces about half the population to live in inadequate, unsanitary dwellings that lack one or more basic services – water, energy and sanitation – and have harmful, wasteful impacts on the environment.

While Guatemala has ample water and forest cover, both resources are disappearing fast. Most people cook over open wood fires, which depletes forests and aquifers and causes respiratory ailments – now the country’s leading cause of death. Many people dig unregulated wells and use open-pit latrines, and most piped sewage is discharged untreated into waterways. Over 95% of rivers are polluted. Widespread sustainable housing solutions could solve many of these challenges.

**Entrepreneurial Approach and Innovation**
CASSA builds sustainable social housing in Guatemala that provides customers with clean water, clean energy and sanitation while saving them money and protecting forests and water bodies. In addition to full-service sanitation, CASSA-built homes feature solar panels and efficient smokeless stoves; capture, filter and store rainwater; and reuse grey water in a family garden.

More than half of Guatemala’s population live below the upper-middle income line. Nevertheless, current estimations suggest that about 500,000 households are able to pay a low monthly mortgage payment. With houses selling for an average of USD 10,000, Guatemala represents a huge potential market for CASSA.

CASSA partners with local and international financial institutions to offer customers long-term micro-mortgages and with providers of water filters, water pumps, solar panels, smokeless stoves and building materials to ensure uninterrupted supply.

**Achievements**
With the support of the Swiss Re Foundation, CASSA conducted a thorough revision of its business model. And to take it to scale, the enterprise used the grant to hire more personnel and launch a wide-ranging marketing campaign. The number of projects under construction is increasing and the company received additional funding to fuel its growth and create impact to better and more sustainable housing in Guatemala. In 2020, 51 projects have been realised with more than 1,300 residential beneficiaries, an installed clean water collection capacity of total 29,200 m3 and over 410,000 kWh clean energy being delivered.
In India, 75 million people are exposed to fluoride and arsenic in their drinking water, and another 150,000 die every year due to faecal contamination. WaterAid published a report stating that each year 73 million working days are lost to waterborne diseases, costing the economy an estimated USD 600 million. The simplest solution is often to simply drink from clean sources, but there are no accurate diagnostic tools for users to identify such sources in the field. Generally, there is a lack of accurate water quality data in India, and no means to collect it. Community-level water purification systems require frequent monitoring. Field testing kits do exist but are often unreliable. At present the only dependable testing method is to send water samples to government labs that exist in every district. However, none of these solutions provide a simplified way to collect and manage the data, a process that is prone to errors.

ffem develops tools that significantly reduce the cost involved in implementing water supply infrastructure projects. Their main products are low-cost smartphone-integrated water testing tools that can test a range of parameters for water quality and significantly improve the quality and ease of collection of water point data. ffem mainly targets organisations working in the water, sanitation and hygiene (WASH) sector, particularly in water supply and quality management. The users would be field staff with little to no formal training in chemistry and data collection, and the tools are designed with this fact in mind. ffem is seeking to set up micro-entrepreneur models whereby local contacts would be offered ffem’s kits for purchase to provide testing-as-a-service on a local scale, either through a rental or subsidised model. ffem plans to set up a public platform for drinking water quality, which would allow more organisations to connect within the sector while also enabling better-quality data to be shared across sectors.

This venture started with a group of friends who wanted to use their skills and know-how to address waterborne health issues in India, thus improving the livelihoods in local communities. Over time their products and solutions underwent extensive testing and sophistication. In 2019 approximately 1,000 products were brought to market, which is more than twice as many as in the previous year. With the support of the Swiss Re Foundation, the business model as well as risks and opportunities were critically analysed and refined. As part of this process, a new for-profit entity, Heuristic Devices, was set up in December 2019. The organisational structure and processes are now under review, and the necessary adjustments are being implemented in preparation to scale its business while adhering to ffem’s open-source philosophy.
The Papagarang Island communities mainly depend on fishing and have been living with limited access to freshwater despite the growing tourism industry in the area. Moreover, living within the Komodo National Park area limits their fishing activities, which requires them to go farther offshore than before. They have difficulties to keep their catches fresh, forcing them to sell more than 50% of their catches at significantly lower prices on the market. Shortages of freshwater and energy supply have discouraged them from acquiring proper refrigeration systems. Currently, water and ice pack supplies are brought from Labuan Bajo, a town located two hours away by boat. The ice cubes are packed in plastic bags, usually carelessly disposed, thereby causing severe ocean pollution. Diesel generators are currently the most common technology used to provide electricity in the National Park and its surroundings, even though their noise and gas emissions are harmful to the natural ecosystem.

Entrepreneurial Approach and Innovation

Tinamitra Mandiri’s (TM) is a social enterprise providing universal access to decent water and sustainable water management solutions for small islands and coastal communities. Its value proposition is to be the exclusive provider of freshwater and derivative products for the coastal and small island communities using solar power systems. The current project is on Papagarang Island, Komodo, hence TM uses Komodo Water (KW) as a brand. KW distinguishes its products by minimising the use of single-use plastic. Ice is not wrapped in plastic, unlike the existing ice supply from Labuan Bajo. The growing tourism industry will drive more demand for fresh fish. Ice blocks allow the fishers to go farther to meet this demand without having to worry about keeping their catches fresh. Moreover, the availability of affordable ice will mitigate the risk of overfishing in the surrounding waters of Komodo National Park. The supply of desalinated freshwater will allow local communities to cook healthier foods and protect them from communicable diseases. The Papagarang Island community has the option to buy stakes in the business to develop ownership or become distributors for KW products through competitive profit-sharing. TM has been working collaboratively with communities on the island to develop and manage the supporting infrastructure, including by organising community service for public health, establishing resellers among local businesspersons, and hiring local young people.

Achievements

When Komodo Water was selected as finalist for the ReSource Award, the organisation was in the phase of validating its solution and business model. With the support of the Swiss Re Foundation, Komodo Water has been able to experiment with its business model, clarify its purpose, and understand its capacities and requirements to scale its business. These reflections as well as the set-up of a business plan helped the organisation to access additional funding, make wise investment decisions, and prepare it to cooperate with partners and investors. Through Komodo Water’s products and services, 3,600 beneficiaries have gained access to freshwater.
Drinkwell Bangladesh

**FOCUS**
Water availability
Safe Drinking water

**PRICE MONEY**
USD 25,000

**INTERVENTION**
Water management infrastructure, monitoring, financing solutions

**BENEFICIARIES**
Community residents

**STATUS**
concluded, SE ongoing

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**Challenge**
The Dhaka Water Supply & Sewerage Authority (DWASA) faces serious quality and illegal withdrawal challenges as it works towards its mission of providing safe drinking water to the approximately 17 million people across Greater Dhaka. Around 700 water points across Dhaka are uncontrolled, allowing “water sharks” to occupy the tap connections and illegally sell water. DWASA estimates its water losses at 40% at such points and is currently unable to monitor the proper functioning of its water pumps. Furthermore, WaterAid Bangladesh studies found 100% of DWASA water provided to slums to be contaminated with faecal matter. Another challenge for low-income households is the high cost and uncertain availability of the illegal and unsafe water they buy.

**Entrepreneurial Approach and Innovation**

Drinkwell’s value proposition involves offering safe drinking water while minimising water loss and increasing revenue to water utilities. Its solution includes a) a cost-effective and safe filtration technology with an integrated water flow and quality monitoring solution, b) a turnkey water ATM booth allowing cashless collection of drinking water and c) a long-term operation and maintenance service.

Drinkwell’s systems-based approach is innovative in three ways: it is (1) appropriate – low energy intensity, longevity, minimal environment waste; (2) based on scalable technology – drinking water sensing, cashless electronic card dispensing, and cloud-based reporting of water flow and quality; (3) cost-effective – Drinkwell’s direct-to-customer model eliminates the 15–20% margin typically charged by dealers and middlemen and passes on the savings to customers, thereby maximising the impact per dollar spent.

The economics of the model allow Drinkwell to turn a profit and grow its operations and DWASA to generate sufficient revenue to install more units. Its business approach (with the turnkey model) makes the solution attractive to other water authorities.

**Achievements**

Drinkwell succeeded in establishing DWASA as a partner – and not a competitor – which greatly helped the organisation to enlarge its network of water ATMs in the city. Together they work towards the goal of providing 17 million inhabitants of the city with access to safe drinking water. By the end of 2020, 300 across the city should be deployed. At the same time, Drinkwell is expanding into other markets – namely India where it is represented with a local office in Kolkata – as well as into other cities in Bangladesh. The deployment of water ATMs in Chittagong, Bangladesh’s second largest city, has begun and 96 additional systems are to be installed in 2020 and 2021. Amid the COVID-19 crisis, water supply becomes ever more essential. Drinkwell with its 50 employees is therefore working in close collaboration with Dhaka WASA and a multinational company to set up an additional 100 handwashing facilities near the water ATMs in the city.