Carbon reductions supporting the Sustainable Development Goals: Case-studies on Air & Water Quality outcomes

Eco Expo Asia 2016/ Eco Asia Conference
Air and Water Quality session
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Our purpose is rooted in the belief that the challenge for our members and investors isn’t a lack of knowledge or resources. It’s that they aren’t able to access them. So Nexus creates that access. We open doors for development.

We work with a diverse range of organizations that are improving people’s lives in the face of poverty and climate change. Nexus connects award-winning organizations with world-leading businesses and investors, inspiring change that maximizes sustainable development outcomes.
• Ana Aires Carpinteiro

• Partnerships & Communications Director

• Over 11 years of experience in sustainability, environmental management, and business consultancy.

• Work on business benefits and funding for low-carbon projects – specifically those delivering clean water, energy access, and improved health in the developing world.
Working with the bottom of the pyramid

• Indoor air pollution from cooking with solid fuels kills 4 million people a year;

• 748 million people lack access to improved drinking water + 1.8 billion people are utilizing unsafe water sources;

• 1.3 billion people lack electricity to light their homes or conduct business;

• 2.7 billion people rely on wood, charcoal, or other solid fuels for cooking and heating.
Scale of carbon finance

- $4.6 billion over the last decade
- $278 million last year
- Nearly 1 billion tonnes CO₂ reduced so far
- Plus wider benefits for our environment and society
How carbon finance can support delivery of the Sustainable Development Goals
Carbon credits

What is a carbon credit?

One carbon credit = One verified emission reduction (VER) = One tonne of carbon dioxide equivalent (CO₂e) reduced

How are carbon credits produced?

When a project has proven that it has reduced the amount of CO₂e produced, or prevented CO₂e from entering the atmosphere, it can earn credits for the amount of avoided greenhouse gas emissions. These can be sold to other parties who wish to reduce their own emissions. This payment creates an incentive for the creation of emission reduction projects.

Why purchase carbon credits?

• Offset your remaining carbon footprint and go carbon neutral
• Achieve corporate responsibility objectives and demonstrate commitment to acting on climate change
• Incentivize low-carbon development projects around the world
• Disseminate energy-efficient technologies to vulnerable populations
• Create numerous health, environmental, and social co-benefits in project communities
Using carbon finance to deliver positive impacts

What is Carbon finance?

The flow of finance to a carbon reduction project via the purchase of carbon credits, where each credit represents one tonne of carbon reduced.
What is ICROA?

“The International Carbon Reduction and Offset Alliance (ICROA) is an international non-profit industry association”

- Housed within the International Emissions Trading Association (IETA)
- ICROA provides a unified voice for the voluntary carbon sector
- ICROA engages with governmental entities and international organizations to support the development of the voluntary market

ICROA’s aims:
- Support development of the market
- Provide quality assurance to customers
- Ensure quality service by promoting best practice guidance
Quality assurance

International Standards, Registries and Industry Standards

Our projects’ carbon credits are held in Markit online registries, ensuring a transparent chain of custody, from issuance through to retirement. All credits listed in registries have unique serial numbers for tracking and management purposes, ensuring traceability.
Types of project supported

Source: Forest Trends State of the Voluntary Carbon Market 2016, Figure 7 Transacted Volume by Project Type 2015
Direct access to our projects

Regular project updates
• Bi-annual updates on project milestones
• Regular reports on the use of funds

Marketing material
• Videos
• High quality photos
• Tailored case studies
• Tailored information about project according to buyer’s CSR needs

Collaborative promotional opportunities
• Research collaboration
• Press release development
• Speaking opportunities at CSR and sustainability panel discussions
• Field visits for stakeholders to project sites
• Ability to directly interact with project developer
Sustainable development goals

• The SDGs were Launched by the UN on 1 Jan 2016. They recognise climate change mitigation as being integral to delivering other sustainability goals.

• Supported by governments and for the first time the role of private sector clearly articulated.

• Businesses are increasingly using the SDGs as a framework for their Corporate Responsibility.
## Nexus’ project portfolio

<table>
<thead>
<tr>
<th>Project type</th>
<th>Location</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Livelihoods</strong></td>
<td>Cambodia, Laos, Malawi, Rwanda</td>
<td>Improved cookstove projects create affordable, cleaner technology. They allow households to cook with less smoke, save money by burning less wood and charcoal, and protect forests and the climate. They also strengthen the sustainability of local economies by offering targeted training and employment.</td>
</tr>
<tr>
<td><strong>Water</strong></td>
<td>Cambodia, Indonesia, Laos</td>
<td>Clean water access is a challenge throughout the developing world. Water filter projects are part of the solution. They protect against illness and are more cost-effective and sustainable than boiling or purchasing bottled water. Nexus’ projects are making clean water a reality in communities across Southeast Asia.</td>
</tr>
<tr>
<td><strong>Renewable energy</strong></td>
<td>Vietnam</td>
<td>Farming families in Vietnam are turning animal manure into clean biogas. This gas can be used instead of fossil fuels to cook, heat, and even light homes. By training local workers as masons to build and maintain biogas digesters, this project is turning waste into opportunity across the country.</td>
</tr>
</tbody>
</table>
Invest in water

Purifier projects create clean water and cut carbon in developing world communities

- **Reduce carbon emissions**, by reducing reliance on wood and fossil fuels for water boiling;
- **Save households money**, by decreasing fuel purchases;
- **Protect forests**, by lessening demand for wood fuel and charcoal; and
- **Create rural employment opportunities**, through local production and distribution.
Invest in water

Creating clean water access in Indonesia

Nazava Water Filters wants everyone, everywhere, to have access to safe and affordable drinking water. The social business, based in Java and Sumatra, has reached over 165,000 people with its water purifier technology.

Their technology has also helped other countries cope with water availability issues including Nepal following the major 2015 earthquake.

Project developer: Nazava
Technology: Ceramic water purifiers
Carbon credits: Gold Standard on Markit Registry
Creating clean water access in Indonesia

... using a simple and safe technology

**Ceramic**
- Small pores of 0.4 micron.
- Removes micro-organisms: bacteria, cysts, parasites, fungi, sand, clay and other particles > 0.4 micron.

**Activated Carbon**
- Reduces the content of harmful chemicals e.g. pesticides and chlorine.
- Improves the taste and reduces smell.

**Silver**
- Kills micro-organisms that are trapped at the surface of the ceramic.
- Keeps the stored water clean.

**Capacity**
- Filters up to 7000 litres (translates to 1-2 years), with a speed of 2-3 litres per hour. (Depending on type)

**Usage**
- Easy to install, use, clean and replace

**Affordable**
- * 18 $, replacement filter: 7 $

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**Benefits Nazava**

<table>
<thead>
<tr>
<th>100% free of bacteria</th>
<th>x</th>
<th>x</th>
<th>✓</th>
<th>✓</th>
</tr>
</thead>
<tbody>
<tr>
<td>Costs per liter (Idr)</td>
<td>85</td>
<td>220</td>
<td>125</td>
<td>25</td>
</tr>
<tr>
<td>Costs per year (Idr)²</td>
<td>475</td>
<td>1,200</td>
<td>680</td>
<td>150</td>
</tr>
<tr>
<td>Nazava is ... times cheaper²</td>
<td>3x</td>
<td>8x</td>
<td>5x</td>
<td></td>
</tr>
<tr>
<td>Annual savings with Nazava (Idr)³</td>
<td>325</td>
<td>1,050</td>
<td>530</td>
<td></td>
</tr>
</tbody>
</table>
Invest in water

Making clean water a reality in Cambodia

Hydrologic Social Enterprise is providing rural households in Cambodia with access to clean, safe drinking water through the manufacture and distribution of ceramic water purifiers.

Hydrologic’s filters are providing clean water to Cambodians while saving CO2 emissions.

They also save households money on fuel purchases and save time that would otherwise be spent gathering wood.

Project developer: Hydrologic
Technology: Locally made ceramic water purifiers
Carbon credits: Gold Standard on Markit Registry
How much does it cost to build and how much do users pay?

The original Tunsai filter costs $18 (which is mostly sold to NGOs):

- Hydrologic recommends that NGOs sell the filters to recipients for at least a nominal charge instead of giving them away for free;
- Research and experience show that people who pay for a water filter are more likely to use it properly, to use it longer, and to replace it when needed.

The Super Tunsai is $36 which Hydrologic sells through local salespeople called Clean Water Experts (CWEs).

Hydrologic is partnered with a microfinance institution (MFI) that processes loans for locals who can't afford the filter.

Access to microfinance credit gives access to up to four times more people than without.
Invest in clean water: Hydrologic

What is the business model?

Hydrologic uses carbon revenues to:

1. Train local producers and distributors;
2. Carry out R&D to improve the filter product;
3. Provide a warranty policy that allows filter owners to receive one free replacement pot when needed.
Super Tunsai is so easy

1 Fill it
2 Close it
3 Drink it!

Safe storage is as important as treatment

Dirty Water
Clean Water Storage
Sanitary Dispensing Spigot
Clean Water
Why are they so happy?

A cumulative total of 400,000 water filters have been sold since 2001. Based on filter usage rates measured in the field, Hydrologic estimates that at least 200,000 filters are still in use. Assuming that each filter serves one family, more than 900,000 individuals—six percent of Cambodia’s population—are currently receiving tangible benefits from Hydrologic’s business activity.10

Health and Financial Benefits

Average health and financial benefits experienced by households using a Hydrologic filter.

REF 1, 7, 10, 11

Users that previously boiled drinking water

- Reduction in time spent collecting firewood and boiling water. Save 22 hours/month.
- Improved air quality in cooking areas. 78% of users report less exposure to harmful smoke.

Users that did not previously boil drinking water

- 46% reduction in number of diarrhea cases. Save US $1.20/month.
- 63% reduction in diarrhea treatment costs. Save 1.15 days/month.
- 78% reduction in number of school/work days missed due to diarrhea. Save 1.15 days/month.
- 44% fewer deaths from diarrheal disease. Save 3.6 lives/year per 1,000 households.

US$73 PER YEAR

Average financial benefit realized by filter users when compared to similar households not using a filter.

US$89 MILLION

Total financial value created for filter users since 2001.
Why are investors happy?
Positive impacts towards SDGs

What other benefits do our projects bring?

The projects that Nexus supports do more than just help the climate. They create a range of social, economic, and environmental benefits referred to as positive impacts or co-benefits.

Nexus works closely with projects to measure this additional impact. When we can communicate the true impact of a great project, it increases the odds of it getting more funding and the value to investors.
Why are investors happy?

What other benefits do our projects bring?

- 1 filter user for 1 year = 1 tonne of CO2 saved

- 1 tonne of CO2 saved (carbon credit) = purchased by corporates at 6 to 8 USD/VER

- Social (time and health – air and water quality); Economic (fuel cost-savings) and Environmental benefits (carbon savings and forest protection)

- Each filter generated a range of benefits quantified at a minimum of 100$ 15 to 17x or over 1500% ROI
Positive impacts towards SDGs

How can we partner to deliver against the Sustainable Development Goals?
Conclusions

• Carbon finance is an established mechanism to fund projects that deliver against multiple SDGs and climate targets. It also provides opportunities for public/private sector collaboration.

• It offers delivery at scale with robust measurement and impact reporting.

• There is good awareness of the need to report and reduce emissions – but reduction is not enough.

• Following the adoption of the Paris Agreement and the SDGs, more people will see the role that offsetting can play in meeting climate and development targets.
Clean drinking water in Cambodia – Measuring impacts

Hydrologic Social Enterprise – why invest:

- Reaching people at scale through affordable products
  - Over 3 million people accessing clean drinking water
  - Market-driven approach: people helping themselves
  - Focused on sustainable development and benefitting the bottom of the pyramid: systemic approach
- Actively contributing to the achievement of the SDGs
- Supporting Corporates in their Corporate Responsibility strategies
  - Over 1500% Social Return on Investment
  - Paying it forward: our clients believe in giving to get back
Thank you

Ana Aires Carpinteiro
a.aires@nexusfordevelopment.org
Nexus

+855 23 990 591
contact@nexusfordevelopment.org
nexusfordevelopment.org