TNO Quality of Life

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TNO Innovation for Development

Socio-economic impact at the poor in developing countries

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TNO at work in Ghana;
farmers explained their daily work in the shadow of the tree and jointly with local stakeholders we co-innovate their hand tools. A first design is manufactured at the blacksmith.

Contents

Community in rural India with livelihood the farming of mango's. With new use of rockwool the water retainment of the soil improves, which results in better survival rates of saplings. This can have positive effects on food security, mango yield and income for poor families.

1   Pro-poor innovation

Of the 6 billion people on earth, 3 billion live in poverty and 1 billion live in extreme poverty, with an income below $2 a day. These poor people, called the Base of the Pyramid (BoP; see figure 1), lack proper basic living conditions like food, water, clothing and housing. They live in slums or rural areas in mainly Africa, South-East Asia and Latin America. Science, technology and innovation are important components of a country's economic growth and wealth creation. This is valid in industrialized economies as well as in developing and transition economies. Innovation with and for the BoP utilize the enormous social and economic power of the BoP. We call this pro-poor innovation: detecting the needs of the poor, finding and developing innovative solutions and anchor the new products and services in the local market or community in a sustainable way.
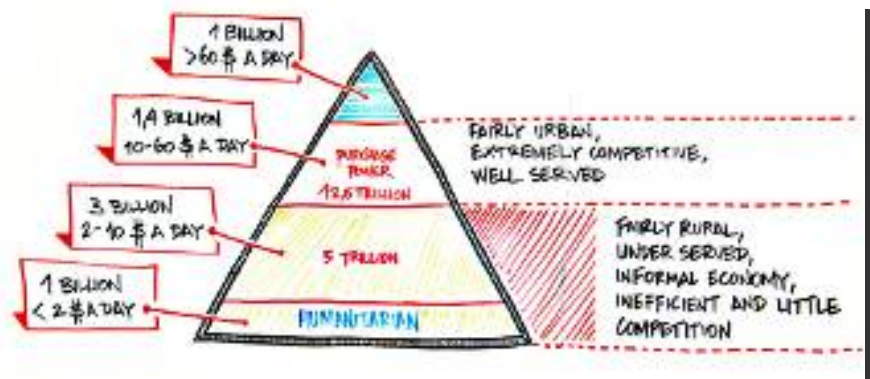

Figure 1.   The World Economic Pyramid. The 4 billion people with low income (the Base of the Pyramid) have huge social and economic potential. At the left the average income for each group; for example for Ghana: $1.89/day   and India $1.56/day. Source: World Resource Institute 2007.

Working in these underserved markets is not an easy or straightforward process. During the last decade some multinationals and civil organizations have obtained first experiences in launching new products and services in BoP markets. These cases are useful for the next step that needs to be taken. The field is ripe for a more nuanced view of how such pro poor innovation approaches can succeed, by learning where to focus, who can lead these efforts, new business models, developing new pilots, learning how to accelerate them and what to avoid. From the first experiences, four important challenges in running successful market driven pro-poor innovations can be identified:

1. Lack of a proper approach to tap the demands of the BoP, the so-called consumer insight, which is the basis for a successful business case;
2. The step towards scaling up fails often; reasons for this can be an underdeveloped local business case, weak consortium, etc. In most situations the development of technologies/ services is not the failing factor, but the successful implementation of the technology/ service in the local market;
3. Absence of incentives for knowledge institutes and the private sector in North and South to co-create in pro-poor innovations. Current incentives are just business-to-business;
4. There is lack of funds available for R&D activities in co-innovation approaches. Current funding programs demand 'proven technologies'; which hinders new, disruptive innovation that may fit better with the local BoP context.

2   TNO Innovation for Development

TNO is a Dutch independent research organisation whose expertise and research make an important contribution to the competitiveness of companies and organisations, to the economy and to the quality of society as a whole. Our 4.500 professionals work on the themes:

- Public safety
- Defence
- Healthy living
- Food
- Employment participation and the ageing population
- Accessibility
- Construction and spatial development
- Living with water
- Energy (management)
- Natural and built environment
- High-tech systems, processes and materials
- Optimum use of ICT

Since 2007, TNO is active on pro-poor innovation in order to alleviate poverty. In 25 projects we collaborate closely with local partners in Africa and India on creative solutions for the poor and sustainable system innovations. Aim is to reduce poverty by increasing the innovative power of developing or emerging economies and to enhance entrepreneurship. This process of innovation sticks to TNO's core activities in the Netherlands; the public part of TNO is developing and applying knowledge with partners to enhance competitive power and the private part of TNO comprises 80 enterprises where proven technologies developed by the public part of TNO are anchored in the market in order to stimulate the Dutch (and European) economy. Because of the similar process, but with differences in cultural and political context, knowledge infrastructure and required business cases, TNO is well positioned to put effort in pro-poor innovations.

This initiative matches with world-wide activities to fight poverty and hunger. In 2000 189 UN countries signed the Millennium Development Goals (MDG's) with the aim to eradicate or reduce these problems in 2015. Also the Netherlands signed the MDG's (see figure 2).

Figure 2. The Millennium Development Goals, signed by 189 UN countries in 2000.

The TNO program Innovation for Development comprises all activities on pro-poor innovation. The *vision* of this program is a world where social challenges in developing and emerging economies are solved by local people deploying sustainable innovative solutions.

The *mission* of TNO Innovation for Development is to start up market based and community based pro-poor innovations in developing countries and emerging economies to reach social impact (poverty reduction) and economic impact (enhanced entrepreneurship). This impact can be reached by a joint effort of all stakeholders. TNO contributes with core competence: expertise on technical and social innovations and experience on the process of system innovations.

Our *strategy* is to contribute with innovative expertise on products and processes of pro-poor innovation organized in the TNO Flying Innovation Team
√   to conduct demand driven projects on pro-poor innovation;
√   with a business and community based approach with focus on knowledge and innovation transfer;
√   in partnership with stakeholders; in co-creation with private sector, civil society, communities, public sector and knowledge institutes from both the Netherlands and developing countries;
√   to reach sustainable innovations with regard to people, planet and profit;
√   to find paying customers for our activities, beside our own investments;
√   to creates awareness of this approach and opportunity in the Netherlands (at our current customers) and international;
√   with a learning by doing approach in this new international pro-poor environment.

The general *approach* of TNO on pro-poor innovation is build up in 5 stages; this is illustrated in figure 3.

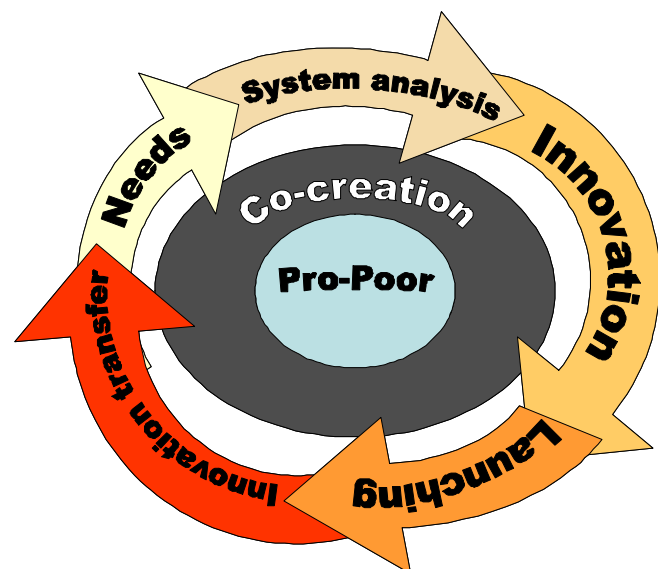Figure 3. The stages of pro-poor innovation of TNO Innovation for Development

Return on investment
We envision four types of return on investments:
1.   Reach social impact on poverty reduction and improved quality of life of the poor;
2.   Create new knowledge and innovation;
3.   Develop new business with the poor and for TNO;
4.   Ensure employees satisfaction and management development within TNO.

3 Twenty-five projects

Focus in projects

The World Resource Institute made an overview of the BoP market by sector (Base of the Pyramid; people with low incomes in the world); see figure 4. Food is by far the biggest BoP market; people need food and want to spend their money on food. Energy is the second best market in poor populations. With respect to this overview and the match with questions from the field we decided to focus on 4 areas:

1. Sustainable energy & climate
2. Food, water & agriculture
3. ICT
4. Monitoring & capacity building

Food $ 2.895 billion
Energy $ 433 billion
Housing $ 332 billion
Transport $ 179 billion
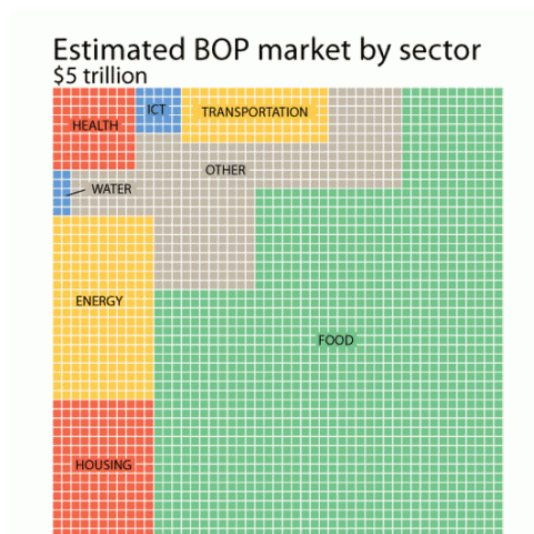Health $ 158 billion
ICT $ 51 billion
Water $ 20 billion

Figure 5. Estimated BoP market by sector (source: WRI, 2007).

At this moment 25 projects are running on four themes:

Sustainable energy & climate
1. Rural electrification with use of a parabolic solar cooker (Nepal and Madagascar);
2. Rural electrification with use of biogas (India);
3. Sustainable Energy Potential Scan for CDM (global);
4. Biogas: recommendations to improve efficiency and durability (India);
5. Waste management and sustainable energy (Indonesia);

Food, water & agriculture
6. Ergonomic farming hand tools (Ghana);
7. Improvement of the pineapple value chain (Ghana);
8. Rockwool in horticulture (India and Ethiopia);
9. Dipstick for cholera detection (Uganda);
10. Food Factory: nutritious insects (Global);

ICT for development
11. Rural internet connections (Zambia);
12. Business models for satellite communication (Africa);
13. Mobiscopy: use of mobile phones in microscopy (Uganda);
14. Conn@ct.now-Empowering children in fragile states with ICT and Media (Global);
15. Election monitoring via ICT (Namibia);

16. Green ICT – Information Society Indicators (Africa);
17. Use of ICT in result based healthcare (Congo);
18. Community Broadcasting for the Maasai (Tanzania);
19. Worknets (Global);

Monitoring & capacity building
20. Monitoring of social effects in community development (India);
21. Automatic Monitoring in CDM with wireless sensor technology (India);
22. Bare foot hydrologists (India);
23. Mother and Child Care (Sierra Leone);
24. Sustainable cotton industry (India);
25. Course Chemical risk assessment (Africa).

Below a brief summary of each project is presented.

Ad 1. Projects on sustainable energy and climate

Project 1 - Rural electrification with solar cooker

Content & activities

Refugees in Nepal and communities in Madagascar use parabolic solar cookers as an alternative for cooking on wood stoves. They expressed a need for electricity as well, to light their homes in the evening and to charge batteries. TNO developed a way to store the collected solar heat of the parabolic cooker and transform it into electricity. This way the solar cooker can be extended with an electrical socket. In 2007/2008 we developed a lab design, in collaboration with stakeholders of refugee camps in Nepal. In 2008 we did a consultancy project on waste management of primary batteries in Madagascar. We combined those two projects and started focussing on the introduction of solar cooker with socket in Madagascar. In 2009 we conducted a market study, set a consortium and gathered information for the business case. The cost of a solar cooker is €100-150 and the estimated cost of a the socket €25.

Impact: In the near future afforfable electricity for 110.000 families in Madagascar: which means light in the evening and charging batteries for small appliances. Plus grow of local entrepreneurship and economy through local production and marketing of the heat battery. In the future: electricity for all poor rural families in many countries.

Period: May 2007 – ongoing

Project 2 - Rural electrification with biogas

Content & activities

Many rural families in Asia cook on biogas. They are lacking electricity because there is no grid available or electricity is too expensive. TNO developed a way to transform the heat of a biogas flame into electricity. This way biogas digesters can be extended with an electrical socket (same technology as applied in solar cookers; see project 1).

Impact: affordable electricity for 10.000 families in India: it will provide light in the evening so children can do home work and people can do home based labour tasks. Also batteries can be charged for small apliances like radios and mobile phones. It will diminsh the waste of batteries in the environment. This family based electricity generation could provide energy for all poor rural families with biogas digesters.

Period: Februray 2009 – ongoing

Project 3 - Sustainable Energy Potential Scan

Content & activities

Our partner ICCO is trading in small scale carbon credit projects (CDM's). Carbon credits can be obtained by the replacement of traditional energy technology (wood fires for cooking and candles/ lamp oil for lightning) by clean sustainable energy technologies (like biogas, solar panels, etc). Civil society organizations lack expertise to select and judge proper CDM projects. Therefore TNO developed with ICCO the sustainable energy potential scan. This scan recommends which energy application is most suitable in a specific region and how many carbon credits could be generated. The scan exists of technical, social, economical and cultural modules. We started this project in India and a pilot in Ethiopia is planned to test the scan.

Impact: improvement of quality of live (like health and time-saving cooking) by generating funding for sustainable energy applications in poor rural areas

Period: May 2007 – ongoing

Project 4 - Waste Management and sustanable energy in Indonesia

Content & activities

Waste management is recognized as one of the priority environmental sectors in Indonesia. This capacity building program on waste management built knowledge among universities, public and private institutions and landfill and waste management organizations on safety issues, environmental issues, and energetic issues of waste management. We developed a urriculum on waste management on the University of Malang and started a pilot project.

Impact: capacity building towards better waste management. This can results in a reduction of many deaths per year, spreading of diseases, large release of greenhouse gases and spilling of resources.

Period: August 2007 - August 2009

Project 5 - Biogas: recommendations to improve efficiency and durability

Content & activities

The use of biogas for cooking in households is widespread in Southeast Asia and is starting to develop in Africa. The replacement of firewood with biogas prevents erosion, improves health in the kitchen and reduces the time for the cooking process. But it appeared that most families don't use their biogas unit most efficient. By means of intensive contact with the Indian counterpart, desk-research and an inventory of different existing dome-plastering methods TNO listed practical recommendations for optimal use of biogas. It appeared that the building process of biogas units can be made more cost-effective by using a well-selected best-practice of dome-plastering. Also, methane loss can be reduced by more efficient use of the installation. TNO delivered a manual with practical recommendations how to improve the production of biogas and how to improve the durability of the construction of the digesters.

Impact: 5800 poor families in India are cooking in an optimal sustainable way. Building of biogas units can become cheaper and simpler without loss of durability.

Period: May 2007- December 2008

Ad 2. Projects on food, water & agriculture

Project 6 - Ergonomic farming hand tools (Ghana)

Content & activities

In the Upper East Region of Ghana 85% of the habitants are small scale farmers. In several meetings with farmers, local scientists and other local stakeholders, they call for new hand tools (like the hoe). We started with a joint project on the improvement of small scale hand tools. Aim is to improve the quality of life by improving productivity and health of the farmers and increase incomes of blacksmiths and carpenters. In collaboration with all stakeholders we made in 2009 a joint redesign of the hoe and tested it in 2 farmer communities. Main change is the long handle. The blacksmiths produced 40 new tools for piloting. In 2010 we do a second pilot with 300 farmers. The business model for local production and scaling up is in preparation.

Impact:

Capacity building on ergonomics with local knowledge institutes. Improve quality of life of 10.000 farmers in Ghana – decreased workload and improves comfort and productivity. Increased income of farmers, blacksmiths and carpenters

Period: February 2008 – December 2011

Project 7 – Improvement of the pineapple value chain (Ghana)

Content & activities

Post-harvest losses in the fruit chain in Ghana are decreasing the incomes of farmers and accessibility to nutritious foods. Processing of fruit products stimulates the sales of farmers and results in the availability of nutritious fruits in all seasons. At the moment limited possibilities for fruit processing are used in Ghana. Producers of juice have minimal margins and are seeking for options to add more value to the pineapple production chain. This project focuses on pineapple side streams: unsold pineapples, pulp (chaff) and peels. Idea is to make juice, syrup, cookies and energy out of it.

Impact:

Knowledge transfer. higher incomes for farmers, economic growth in the food processing industry and implementation of fruit processing in rural areas with overproduction of fruit

Period: February 2008 – December 2011

Project 8 – Rockwool in horticulture (India and Ethiopia)

Content & activities

Tree crop agriculture is a huge challenge in semi-arid areas, due to limited availability of and access to water. The chances for food security and making a sustainable income as a local farmer in these areas are low. The lack of water results in a low survival rate of the saplings and added costs for local farmers. Especially in the first three years planted saplings do not have an extended root system yet and most of the water (usually hand poured) percolates below the root zone and is therefore not available for the young plants. This loss of water has another huge impact on cost for local farmers in poor areas. TNO developed the idea to use rock wool, which is able to retain water in the soil (90% of its volume). The rock wool is placed in the soil close to the roots of tree crop saplings. When water is given during the long dry season, the excess water will be trapped by the rock wool and given back during a period of 3-4 days. This technology is currently tested in a semi-arid area in the south of India, using mango saplings and in Ethiopia using olive saplings. The survival rate of saplings was 15% increased.

Impact: better survival rate of mango saplings, increased food security and increased income for poor farmers in semi-aride areas. Possibly: CO_2 reduction by enabling tree crop agriculture in areas where that was imposible

Period: May 2007 – December 2012

Project 9 – Dipstick for cholera detection (Uganda)

Content & activities

Waterborne diseases still kill 1.6 million people each year worldwide. Faecal contamination with the coliform bacteria is a major cause of waterborne diseases. The standard methods to detect coliform bacteria require incubation in a microbiological laboratory and take at least 24-48 hours. The Dutch Refugee Foundation asked for a simple, cheap, robust and fast test method for on site detection. Such a method will be used more frequently, at more places by more people and can warn people earlier, and as a consequence, save lives. TNO designed and demonstrated the proof of principle of an affordable and reliable test, which can be used on site by non-specialist people for rapid detection of faecal coliform bacteria. Now we are searching for a manufacturer who can develop the test to a field–test and start-up the production,

Impact: Better health by better water quality when the test is manufactured and launched.

Period: January 2007-ongoing

Project 10 – Food Factory for insects (global)

Content & activities

The FoodFactory is an to fight world hunger by industrially rearing insects for food. Insects are highly nutritious; they generally contain more protein and less fat than traditional meats. They also have higher food conversion efficiency than traditional meats. Furthermore, they reproduce much faster than cattle, are easy to raise and need far less living space. The idea of the FoodFactory is to design highly scalable factories where insects are grown, harvested and processed in an industrial way, making the process of making insect-based food cheap and controllable.

Impact: Availability of nutritious food improves hunger, health and productivity.

Period: August 2009 – ongoing

Ad 3. Projects on ICT

Project 11. Internet connections (Zambia)

Content & activities

To empower the local populations of developing regions in Africa, initiatives are being deployed to bring internet to the more rural communities in Africa. NGO Linknet is active in Zambia on connectivity to internet by satellite communication and WiFi connections on the ground. TNO added value in the system approach of scaling up: how can we connect 200 villages in Zambia. Finding competent personnel is a big challenge and hinders the up-scaling of the project to a national level. TNO developed a curriculum for a Master of Science Programma: ICT for Development together with University of Zambia.

Impact: improvement of economic position of farmers and quality of live of inhabitants of 2 Zambian villages through improved information by internet connection. Improvement of knowledge to LinkNet Zambia, who implements the internet connections

Period: January 2006 – January 2009

Project 12. Business models for satellite communication in Africa

Content & activities

In this project, a toolkit to assist in the conception, design and implementation of projects that help in the empowerment and growth of communities and organisations in developing countries through the use of satellite communications was developed.

The new toolkit is a multidimensional tool that provides guidelines targeting three main categories of users (programme manager, project initiator, and project manager) and looks at activities in three successive phases (pre-, running, and post-) in an easy-to-navigate and interactive pdf document. Second part of the project focuses on the development of innovative business models to support satellite communication in Africa.

Impact: increase of project management performance by local actors, decrease in satellite tariff for local NGOs.
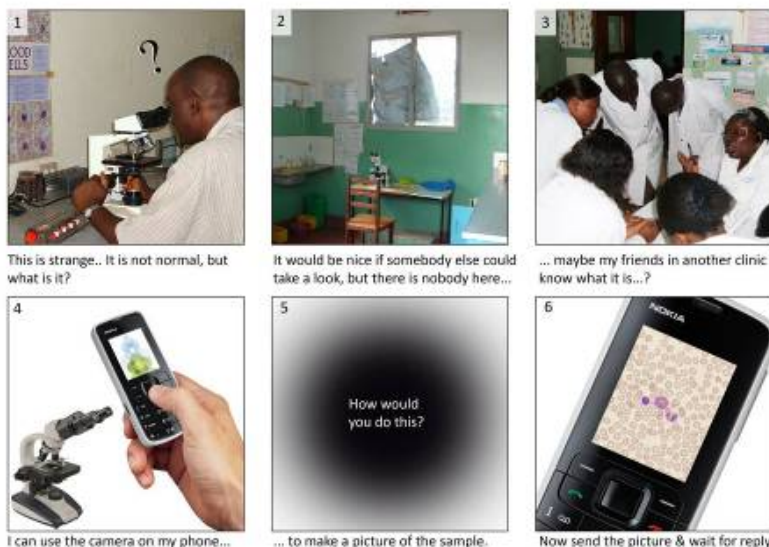
Period: July 2008 – July 2010

Project 13. Mobiscopy (Uganda)

Content & activities

Microscopy is a vital and omnipresent healthcare tool in developing countries. However, microscopic analyses are considered laborious, time-consuming and most importantly, are dependent on the presence of well trained personnel that can accurately establish a diagnosis on the basis of the microscopic images. As results, medical diagnostics in developing countries often lead to many common misdiagnosed and wrongly treated diseases with far reaching consequences. An innovation of TNO to improve this situation, is a new-developed product linking a microscope and a mobile phone equipped with a camera . Aim is to enable exchange of health information among practitioners in Uganda.

Impact: Better health of people in rural areas

Period: April 2008 – ongoing

1. This is strange.. It is not normal, but what is it?
2. It would be nice if somebody else could take a look, but there is nobody here...
3. ... maybe my friends in another clinic know what it is...?
4. I can use the camera on my phone...
5. How would you do this? ... to make a picture of the sample.
6. Now send the picture & wait for reply.

Project 14. **Conn@ct.now:**
          Empowering children in fragile states with ICT & Media

Content & activities

War and conflict continue to affect children and young people. Conflict violates their rights, destroy-

ing social fabric and children's future prospects. Even though children manage to survive, the scars remain. With War Child and other partners we provide a solution for those children in the MFS consortium Conn@ct.Now. We combine resources, experience, equipment and software in a program that focuses on using creative, innovative methods including ICT and Media to reach, support, and ultimately socially activate children and young people to claim their basic rights and create a better future for all. The objectives will be met through setting helplines (telephone), offering educational programs through a `radio teacher'and implement lifeskills activities that examine such themes as identity, and dealing with emotions.

Impact: improve the psychosocial well being of children in fragile countries and their access to quality education.

Period: August 2009 – December 2015

Project 15. Election monitoring via ICT (Namibia)

Content & activities

Elections are the cornerstone of creating a democratic political system and monitoring is an important part of the overall system. Monitoring support the electoral process by instilling domestic and international legitimacy, by preventing disputes over the outcome of an election (reducing electoral violence), by giving parties greater confidence that the vote was free and fair. In developing countries, monitoring is used to prevent governments from manipulating the vote. Campaigning and voter registration efforts could also be monitored beforehand by independent organizations. Election monitoring systems (especially via ICT), to be efficient, should be easily deployable on a large scale, and are content/context dependant (hence, have to be tailor made). The opportunity for Hivos is to develop a system using ICT to monitor elections in Africa. The system developed will improve the transparency of the election events by involving directly the civil society.

Impact: more transparent and efficient monitoring of elections in Namibia and Africa.

Period: April 2009 – on-going

Project 16. Green ICT – Information Society Indicators (Africa)

Content & activities

HIVOS operates where ICT and human rights meet, with media programmes that give a voice to critical and alternative views from society. HiVOS is member GISWATCH; the premier information platform for civil society perspectives on the state of the Information Society on global, regional and national levels. In 2009 TNO developed with GISWATCH a set of on indicators for measuring the information society and the extent to which they incorporate human rights concerns such as access to information. This includes access to education, freedom of press, access to infrastructure required for information (access to PC's and internet at home, at work, at school or at other public institutions such as libraries). Currently there is a lack of indicators that take into account such things as climate change and sustainability when dealing with the information society. TNO delivered in 2009 a state of the art on indicators for measuring green ICT and recommendations for developing indicators for green ICT for GISWATCH

Impact: less carbon emissions by sustainable use of ICT

Period: September 2009-December 2009

Project 17. Use of ICT in result based healthcare (Congo)

Content & activities

Cordaid is active in Congo with result based health care. This means that health care institutes earn their money of insurance companies after the medical treatment. This system requires a proper administration en declaration process. Because of the poor infrastructure in Congo the most suitable way to organise a fast and reliable system is by use of ICT. After a working visit in 2008 TNO recommended the best solution. Currently we jointly work on acquisition for implementing the solution.

Impact: better health care in Congo

Period: May 2008 – ongoing

Project 18. Community Broadcasting for the Maasai – Tanzania

Content & activities

Aim of the project was to preserve and share traditions of the Maasai Mara, inhabitants of the highlands of Tanzania. TNO did an inventory how to connect the Maasai to internet and digital radio and TV. During the working visit in 2008 the local partners concluded that they had sufficient expertise to conduct the project by themselves. It is decided to continue the project fully with local staff.

Impact: preservation and sharing traditions of the Maasai.

Period: January 2008 – November 2008

Project 19. Worknets (Global)

Content & activities

Worknets is an on line collaboration network equipped with software as a service for faster, better and more cost efficient collaboration. You can open a new Workspace for every collaboration goal, invite the relevant network of participants and use the software tools that meet your demands. Worknetting is the newest development in open source software. The use of Worknets offers a more efficient, transparent and accountable way of working which matches with future ambitions of the sector. One part of the sector wants to pilot with Worknets and asked an evaluation of TNO.

Impact: efficiency in sector development cooperation

Period: May 2010 – May 2011

Ad 4. Projects on monitoring & capacity building

Project 20. Monitoring of social effects in community development (India)

Content & activities

NGO in India runs an integrated habitat development program guided by the belief that all people deserve to live with dignity. Important aspects of the program are inclusion (100% coverage), social equity, gender equity, sustainability and cost sharing. Aim is to bring sustainable, social and economical value to the villages. They monitor the implementation and progress of the program carefully, but they had questions to make results more objective and explicit. TNO supports the NGO with the development of a framework and toolbox for monitoring, which can be useful for comparable organisations who intends to improve their monitoring system.

Impact: better quality of live of the 300.000 Dhalids through better impact measurement of their community development program

Period: May 2007 – July 2010

Project 21. Automatic Monitoring in CDM with wireless sensor technology (India)

Content & activities

Carbon credits can be obtained by the replacement of traditional energy technology (wood fires for cooking and candles/ lamp oil for lightning) by clean sustainable energy technologies (like biogas, solar panels, etc). These small-scale Clean Development Mechanism (CDM) projects, that cover hundreds of thousands of households, have to be submitted to the UNFCCC. They require a proper monitoring, which is mostly done by manual book keeping based on frequent visits of each household. This is time-consuming and less reliable. TNO developed a wireless sensor technology, which monitors automated and autonomously. Additional benefits are better accountability, extra functionality, lower operational cost, and increased local ICT awareness. One pilot is proposed with biogas at rural households with local partners of ICCO in India.

Impact: improvement of quality of live (health and time-saving) by generating funding for sustainable energy applications in poor rural areas

Period: October 2009 – December 2010
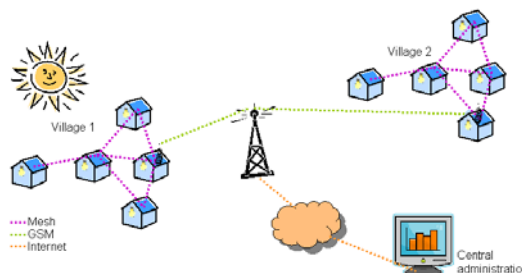
Project 22. Bare foot hydrologists (India)

Content & activities

The Water and Sanitation programme of an NGO in India (Orissa), has since 1994 contributed to the improved rural health situation. But still they have problems with organising enough drinking water with good quality. In 2007 and 2008 TNO built up their knowledge on detecting groundwater, efficient siting of wells, measuring the water quality and sustainable watershed management. To ensure a sustainable impact we are now making a toolkit to train bare foot hydrologists. The concept of Bare Foot Hydrologists includes training of local staff as practical hydrologists who can work in the field and in the office, build and maintain a basic computerized database, develop a toolkit and ensure improved interaction with local governments and research institutes.

Impact: Sustainable safe drinking water and sanitation for 300.000 poor inhabitants

Period: May 2007 – December 2010

Project 23. Mother and Child Care (Sierra Leone)

Content & activities

Every year almost 11 million children under the age of 5 die in developing countries. In addition, more than 500,000 women die every year during pregnancy, child birth or shortly thereafter, and 20 million women suffer from illness and disability for long periods or even lifelong due to complications. 20 international partners start collaborating in 2009 to improve this situation. Focus areas are Afghanistan and Sierra Leone. Activities are on midwifery training, strengthening the health systems, raising awareness for this issue, and development of a knowledge system. TNO is participating in the Sierra Leone project with the development of a monitor protocol for proper administration of births, deaths, illnesses and causes on community level and with technical assistance for developing a community based maternal death audit.

Impact: knowledge transfer and lower mortality rate of women who give birth.

Period: March 2009 – March 2012

Project 24. Sustainable cotton industry (India)

Content & activities

The textile wet processing industry is polluting the environment. NGO Solidaridad started projects in India to make this industry more sustainable for planet and people. Objectives are to create showcases of cleaner production, to scale up results to cotton supply chains world wide and creating awareness with stakeholders and consumers in the Netherlands. TNO initiated the so called User Group methodology in with which different companies can share their best practices and experiences on a common topic. The User Group methodology will be introduced in Bangladesh too through a 'Train the Trainer' project. Local facilitators will be trained to initiate and facilitate user groups on a variety of topics. TNO shared its energy related experiences on User Groups in the Netherlands and wrote a manual on this succesfull methodology. Several User Groups were initiated on a variety of topics: steam distribution systems, electrical systems (both in textile industry) and labour absenteism in the garment industry. Where possible and needed technical support was provided.

Impact:

Cleaner production in 25 cotton factories in India, improved awareness and knowledge in 25 cotton factories, better working conditions for 2500 employees and less polution of the environment around cotton factories

Period: July 2007 – December 2010

Project 25. Course Chemical Risk Management for Africa

Content & activities

The UN Environmental Program (UNEP) has a subprogram Strategic Approach to International Chemical Management (SAICM). This program aims capacity building in 22 African countries. During the World Summit on Sustainable Development 2002 in Johannesburg they ensure that, by the year 2020, chemicals are produced and used in ways that minimize significant adverse impacts on the environment and human health. An important handbook on chemical risk assessment was written by RIVM and TNO for the EU in 2007. On the basis of this handbook training was developed for Ministries (train-the-trainer approach).

Impact: 30 trained officers in 22 African countries, visibility of TNO in chemical risk management in developing countries (and UN)

Period: 2009-2010