

**Looking back on 28 years of
Ecological Management Foundation**



EMF



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Foreword

After almost 30 years, EMF has stepped down and is leaving it to others to take the lead in providing clean and safe and water for everyone.

Initially, EMF was concerned with raising environmental awareness, but later focused its attention on water. The foundation has worked with different partners on a wide variety of projects, but there have always been some common denominators. Most important among these was the search for the right balance between humans and nature and the desire to strengthen their dynamic in a positive sense. Awareness raising, technological solutions, and business case development were the core principles underlying EMF's mission.

What made EMF so unique was its role as an innovator and initiator. EMF has always been a small foundation run by volunteers with a knack for spotting new ideas with high impact potential and the guts to invest time and resources in them. Over the years, many of these innovative EMF projects found their way into the mainstream and have changed the mindsets of decision-makers, affecting the livelihoods of many in a positive way.

It is telling that EMF's final project could not be further from its first. EMF never stuck to one particular actor or approach, but remained open to different opportunities by taking an interdisciplinary view. Allerd Stikker, the founder of

EMF, set the tone in 1991 by knocking on the doors of banks and companies to start what is now known as Corporate Social Responsibility; in 2017 the Rain for Sale project focused on entrepreneurs selling rainwater from their own tanks in Rwanda.

As the last chairman of EMF I am proud to have been part of this organization. I hope this booklet will inspire others working in the same field to be bold and not afraid to come up with innovations to tackle global issues.

Annemieke Beekmans



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Introducing Environmental Performance Indicators in the private sector

The first EMF project came from a drive to show that environmentally sound business makes for profitable business. Allerd Stikker was inspired by a large government project in Taiwan in which economic growth was matched with environmental protection. It motivated him to set up EMF and launch this first project to start a debate on the same topic in the Netherlands and beyond. This does not seem so revolutionary now, but in the 1990s it was a challenge to say the least.

Activities

EMF approached the major banks in the Netherlands to draw their attention to the need to include environmental performance in their credit rating systems. EMF's chairman published an extensive article on the subject in the December 1991 issue of the Dutch Bankers' and Traders' Association magazine. A subsequent blueprint on how to include environmental issues in credit rating systems was drawn up by ING Bank in cooperation with EMF, Coopers & Lybrand Financial Services and TNO (Netherlands organization for applied scientific research).

Working in cooperation with Environmental Management Consultants Group of Coopers & Lybrand, in 1993 EMF launched a program that introduced Dutch industry to EPIs, based on the Global Environmental Management Initiative (GEMI) in Washington in 1992. Together, Allerd Stikker and Folkert van der Molen published three articles in 1994, performed two benchmarking studies and engaged the

boards of many companies, including AKZO, DSM, and Nuon.

Impact

This project laid the foundation for improved CSR performance and reporting in the Netherlands. Although unprecedented at the time, all the major banks now have environmental procedures in place and these are extensively documented in their annual reports. The work led to further projects with NNB (predecessor of NN) and Nuon to apply EPIs into their policies.



Memstill

A growing problem in many parts of the world is an acute shortage of drinking water. As many people live in coastal areas, EMF saw desalination – turning salt water into usable water – as an important part of the solution. EMF was convinced that desalination installations could deliver substantial quantities of high quality water more economically and in an ecologically superior way than additional conventional means. Throughout its life, EMF worked on different desalination techniques, but from 1995 to 2005 concentrated on the Memstill desalination technology – an innovative water treatment technique based on membrane distillation.

Activities

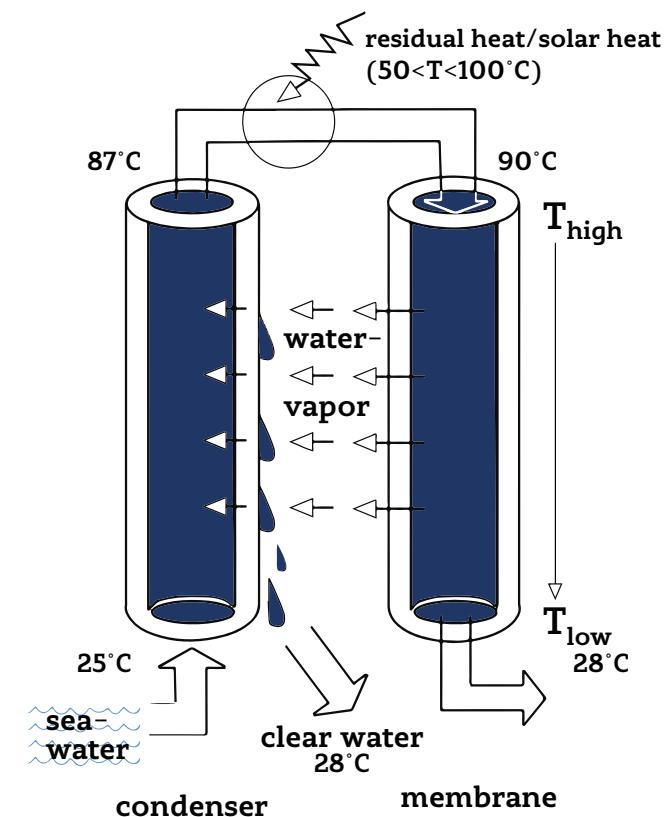
In 1995, EMF was approached by an American technician who had found a way to turn salt water into fresh water. EMF saw potential in this technology and proposed it to TNO for research into the underlying idea. EMF's focus then shifted to bringing other parties into the process and in 1997 the Memstill Consortium was founded with seven partners. The laboratory research into the technology was finally completed in 2004. Once the principle was proven effective, the technology was patented and ready to be scaled up.

Impact

Initially, in 2007, the Keppel Group in

Singapore and Aquastill in the Netherlands started work on commercializing the technology. TNO developed the first Dutch Memstill pilot plant, which proved effective and demonstrated its economic feasibility. The Memstill technology is currently being developed for upscaling by several parties and new developments around the technology continue to come up in the media on a regular basis. This type of technology usually takes around 10 to 15 years to become fully operational. Besides development of the core technology itself, work has also started on related applications, such as Mempower, which produces drinking water and electricity at the same time.

Principle Memstill-process



Partners

TNO, Heineken, Evides, E.On, Waternet (formerly Gemeentelijk Waterleiding Bedrijf Amsterdam, GWA), Seghers Keppel and the University of Twente

Allerd Stikker



Allerd Stikker founded EMF in 1990 and remained the driving force behind the organization for many years. Before starting EMF, Allerd studied chemical technology in Delft and subsequently worked as a top executive in the corporate sector for 30 years. He had a strong passion for evolutionary philosophy and sustainability. Throughout his life he worked to promote the understanding that ecology and economy are in line with each other rather than in opposition to each other. For over 50 years he has published and spoken on this idea.. In 2010, when EMF became part of Aidenvironment, he took two projects that were close to his heart – the Daoist Temple Project and Faith in Water Schools – with him to the Valley Foundation to develop them further.

How did the idea behind EMF begin?

“By the time I started EMF, I had already been interested in the relationship between economy and ecology for a long time, and had written a book about this. I gave myself a mission. I said to myself, ‘You have to do something to connect ecology and economy, to facilitate that cohesion. There are so many unfortunate circumstances in the world today that need to be restored.’ My first project – this was before EMF started – was with the Transform Foundation in America that I had. In Taiwan in the late 1980s, we had a project aimed at matching economic growth with environmental protection. This was a large project. Eventually, based on our report to the government, the ecological element was taken into account in the economic growth model of Taiwan. I learned a lot from this project and it made me realize that this was what I really wanted to focus on.”

How did this lead to the first EMF project?

“Back in the Netherlands I started to advocate and publish about the idea that if we act in an ecologically irresponsible manner – if we deplete our natural resources – there will be no economy left. Of course, it is not that simple in reality. But at the time, these publications were a real eye-opener. There was a lot of resistance against my way of thinking; people did not understand what I was doing. Looking back on it, I can say that I was quite ahead of my time in this regard. I started by contacting the government and some private sector parties, such as Akzo, DSM, and Nuon. I approached the environmental department of Coopers Sc & Lybrand Management Consultants to set up a program to help the private sector identify where ecological input is necessary to achieve a good result or performance. That is how the first EMF project, Environmental Performance Indicators, got started.

It was a real eye-opener for me to realize how much you can do and accomplish alone.

Throughout my career my way of working has always been to take initiatives to get things started, and when they have got going to pull back and focus on other initiatives to develop.”

If you look back on your entire time with EMF, what is the one thing that stands out that you will always remember?

“The most beautiful thing for me was that I was able to fulfill my dream. With EMF I could be completely independent and was able to take all the decisions myself. I was no longer part of an organization with different layers and extensive decision-making processes. After working in the corporate sector for a long time, it was a real eye-opener for me to realize how much you can do and accomplish alone. You have a lot more personal contact with the people you work with. I don’t mean co-workers, but people

you work with, share the same passion with and work on the same mission with. Looking back on the entire time of EMF, I could say EMF was quite successful. Well, 80% of the projects that emerged have been finished, and only 20% did not make it – Sujol in Bangladesh being one of them.

An other aspect I would like to mention is the stimulating support of my boardmembers and the dedicated assistance of my secretary who is still working for me at this present day.”

You have been active for 30 years. What is your vision for the next 30 years?

“As a last action in my life I have written an essay: Code Orange for Life in Earth, subtitled Opportunities and threats arising from the innovation explosion in the context

of evolution. It puts the present-day explosion in innovation into the context of evolution. By means of four major innovative leaps in evolution I describe how the innovations preceding the emergence of homo sapiens took place with an uninterrupted coherence and balanced interaction between measurable and non-measurable values. It seems that, since that time, humans have almost exclusively focused on the material and measurable aspects of innovation. All the signs show that, if there are no corrective adjustments between 2020 and 2050, this behaviour could lead to a serious derailment of nature and society. My aim with this essay is to point out the opportunities that exist to turn the tide in time.”



CEO Panel for Industry and Water at the World Water Fora



After reading one of Allerd Stikker's published articles on how to avoid water scarcity, the director of Unilever invited EMF to draft a corporate water policy for them. During this process, the idea emerged to remind other companies of their influence on and responsibilities for the water situation worldwide. The Second World Water Forum in The Hague in 2000 appeared to be the perfect opportunity for that, except for the fact that until then only NGOs, governments, and small Dutch companies attended such events; the corporate sector, which represents the largest users of water, was entirely absent. To successfully tackle the pressing water issues facing the world, companies need to be included in the search for solutions as well.

Activities

EMF contacted the Dutch Ministry of Foreign Affairs to discuss actively involving the corporate sector in the World Water Forum. The ministry liked the idea and asked EMF to organize the CEO Panel for Industry and Water at the Second World Water Forum. EMF convinced the CEOs of 11 international companies – from the water services, consumer products, and water engineering sectors – to take part in the event. They released a joint statement acknowledging their responsibility to act and their willingness to play a constructive role in helping to find solutions for clean water and sanitation. On the back of this success, EMF was asked to take on the private sector participation in the World Forum in Kyoto in 2003, and this too was a great success.

Impact

The organization of the CEO Panels made a major contribution to the future involvement of the private sector in the debate on water issues. Private sector parties became regular attendees in water events. Moreover, it led to increased awareness and increased willingness to take action within the corporate sector. The contacts made and relationships forged between companies and other parties in the water sector during and around the CEO Panels led to new partnerships, ideas, and solutions for effectively tackling urgent water problems.

Partners

Unilever, Suez, Veolia, Thames Water, Heineken, Nuon, ITT, Rabobank, CH2MHill, Royal Haskoning, and three Japanese companies

Documentaries

Besides raising awareness of water issues among public and private sector organizations, EMF realized the importance of raising public awareness of pressing water issues. One of the vehicles chosen to do this was producing documentaries. Between 1999 and 2009 EMF was involved in the exploration, initiation, financing, development, and promotion of several documentaries on water issues, such as water scarcity, WASH, and poverty.

Activities: EMF's involvement with documentary filmmaking started with an initiative in 1999 to develop a six-part international documentary on water problems and solutions called *Water, The Drop of Life*. The first full-length screening took place at the start of the World Water Forum and ministerial conference in The Hague in 2000. Since then the documentary has been shown in 60 countries, including the United States, where it was broadcast by the Public Broadcasting Service.

EMF continued to explore and initiate documentaries in the field of water, poverty, and microfinance, in cooperation with professional filmmakers, resulting in four six-part TV documentary series on water issues in developing countries:

- *A Drop of Life (2000)*
- *A Dollar a Day (2005)*
- *Private Sector Projects in Developing Countries (2005)*
- *Blue Gold (2008)*

In 2009, *Het Blauwe Goud (The Blue Gold)*, that addressed problems of and solutions for freshwater shortages in the developing world, was broadcasted on Dutch TV by NCRV. Besides initiating this series, EMF also selected the projects that were featured and conducted an extensive interview with Crown Prince Willem-Alexander of the Netherlands.

Impact: All the documentaries were screened on television, both in the Netherlands and abroad, reaching large numbers of people. This wide reach has contributed to an increase in awareness of water issues among the general public.



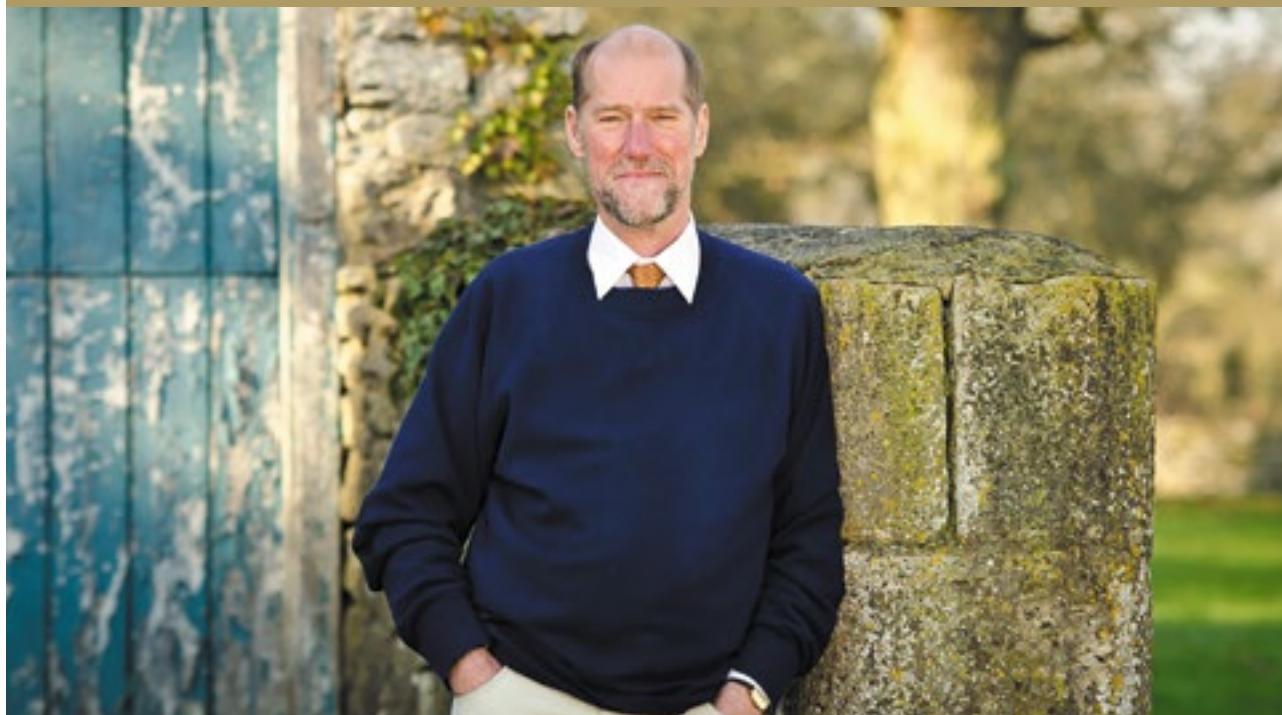
Participating organizations

included Vitens, Rabobank Foundation, TNT, Friesland Foods, Unilever, Heineken, SNS Water Fund, Waterschapsbank, and DOB Foundation.



Martin Palmer

Martin Palmer helped found the Alliance of Religions and Conservation (ARC) in 1995 and has been the Secretary General of ARC ever since. ARC is an organization that helps the world's major faiths develop environmental programs based on their own core teachings, beliefs, and practices. He has collaborated with EMF since 2003, mainly on the Daoist Temple and Faith in Water Schools projects.



How did you become involved with EMF?

“My later involvement with EMF actually started with my first meeting with Allerd, which was in 2003 at a formal dinner in Utrecht. We were seated next to each other and quickly discovered that we were both in love with the same woman, Kuan Yin, the Chinese goddess of mercy, compassion, and kindness. Allerd had become very interested in Kuan Yin during his work in Taiwan in the 1980s, and I had written pretty much the only book on Kuan Yin at the time. We share the same passion, which was the basis for our close personal friendship. We also had the same idea of working with the major religions and developing environmental programs around their own beliefs and wisdom.”

How did the collaboration with EMF start?

“This was when Allerd told me EMF was interested in being part in our China projects. Six months later we were approached by WWF NL and asked if we could help them develop an ecological religious program around a ruined temple center, the temple of Tiantaishan which belongs to the great monastery of Louguantai. Besides rebuilding the temple sustainably and restoring the land around the temple, we established an ecological training center where monks and nuns could be trained in ecological programs. The project has been a great success and is expanding, and now 500 Daoist temples in China run this type

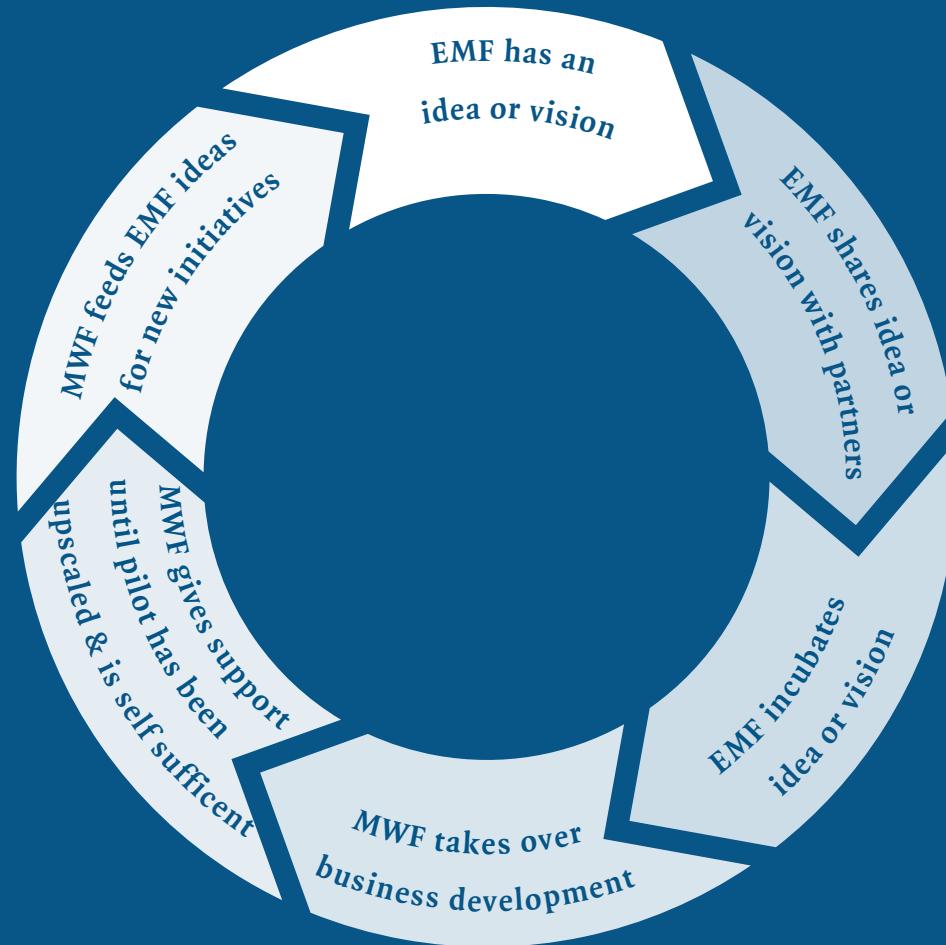
of center. The program has completely changed the way Daoists work in China. The program has also led to major long-term commitments on environmental work, food, and wildlife trade in China.”

From temples to faith-based schools

“In 2012, Allerd managed to convince the ARC board to focus on the use of water. With EMF we set up the Faith in Water program targeting faith-based schools (50% of schools worldwide and 64% of schools in sub-Saharan Africa), which are generally ignored by large organizations such as UNICEF and UN. We developed a sustainable toolkit and trained students and teachers on water issues and water use in Kenya, Uganda, India, and the Philippines. This toolkit became an integral part of curricula at faith-based schools and even of national curricula in some countries. WWF, the World Bank, and EMF were the first to work with all world religions on projects such as WASH, and Faith in Water opened the doors to enormous new potential for WASH programs. Together with EMF we helped to change policy on this within UN and UNICEF.”

We had the same idea of working with the major religions and developing environmental programs around their own beliefs and wisdom.

MWF



Description

EMF launched the Micro Water Facility (MWF) to broker between water technology inventors, NGOs, financial institutions, donors and local communities in developing countries, introducing small scale drinking water and sanitation water techniques for the poor. MWF was formally established as a not-for-profit foundation in August 2007. MWF was set up in close collaboration with AquaForAll, Aidenvironment, the Adessium Foundation and the Entrepreneur Fund. So, MWF was not a regular project of EMF, but an entire independent organization.

Activities

Conducting business in developing countries requires a specific approach – that is characterised by an understanding of and adaptation to local conditions and the ability to find the right financing arrangements and enter into often unconventional partnership agreements. MWF advised businesspeople and project organisations on the appropriate strategy to be followed and acted as an intermediary in finding the right partners. MWF was a unique broker between entrepreneurs and financiers, between demand and supply of inventive products, and between parties that sought to contribute towards realising the Millennium Development Goals. As is shown in the figure on the left page, MWF was created as an addition to the existing EMF activities. Both organizations fed into each other

continuously. Where EMF started the development of an idea, shared and incubated the idea, MWF consequently took over the concrete business development of the concept. MWF kept supporting and developing the initiative further until it could be upscaled and was completely self-sufficient. Based on this trajectory, MWF could in turn deliver back new ideas to EMF. In total MWF accelerated 23 companies in this way.

Impact

Of the 23 accelerated companies, four (Akvo, Safi Sana, Aqua Aero Water Systems and Peepoople) became successful. This can be considered as a very high success ratio. These four companies have been and still are contributing to improved small scale drinking water and sanitation water techniques for the poor worldwide.





Taoist Temple

In the early 2000s many Daoist temples that had been ruined during the Maoist revolution in China were about to be rebuilt and restored. As Daoism is a philosophy with a particular strong nature protection component, EMF had the idea of linking the renewal of the Daoist temples in China with setting up and funding educational ecology centers at temples. Through its partnership with the Alliance of Religions and Conservation (ARC), EMF became involved in a program to do just that. The first such temple project, in Taibai Shan in central China, was initiated in 2005 and supported by ARC, the World Wide Fund for Nature (WWF) China, and EMF, in close cooperation with the China Daoist Association.

Activities

EMF had an important role in both the development and the financing of the ecological temple project. After the first temple project in Taibai Shan was successfully started, a conference was organized on Taibai Shan in 2006, which resulted in the Qinling declaration on the establishment of a Daoist Ecology Temple Network. Around 15 temples subscribed to the network. The first Daoist ecology temple, Tiejia on Taibai Shan was officially inaugurated in 2007. After that, the temple network grew slowly but steadily. In 2008, the Mao Shan conference was attended by around 200 Daoist masters, nuns and government officials. Building on the progress already made, in 2010 the program was expanded

and copied in over 12 Chinese provinces. The aim is to ultimately apply the concept in over 10,000 temples in the coming years.

Impact

The Daoist Temple program keeps on expanding, increasing its reach and impact. Daoist organizations took over the program in August 2018 so it is now 100% Daoist owned. Given the Daoist view of life and the large number of Daoist temples in China, the Daoist Ecology Temple project will raise awareness in rural China about the responsibility we have to look after nature and biodiversity, water, energy and forestry resources, and to protect endangered species.



The first temple project was started in Taibai Shan in central China in 2005, the current aim is to expand the project further to over 10,000 temples.

Folkert van der Molen

Bringing environmental thinking in business to the Netherlands during the 1990's

Folkert van der Molen played an important part in the first years of EMF on a project that aimed to improve the environmental performance of the private sector in the Netherlands. "I met Mr. Stikker in 1993 on a rainy afternoon in Amsterdam. It was my first day as a consultant at what is now PwC. This was the start of several years of close collaboration, during which Mr. Stikker and I managed to successfully bring ideas connecting business and environmental performance from the United States to the Netherlands."

Designing Environmental Performance Indicators (EPI's) for companies

Allerd Stikker and Folkert van der Molen built their EPI approach in several peer-reviewed publications in 1994. After designing the tools for measurement, they performed

two benchmarking studies, sending out a questionnaire to companies in the Netherlands to compare their performance on environmental indicators such as waste produced, water used, and electricity used. A seminar on "Banks and Environment" was organized to spread the word across the financial sector. The project caught the attention of energy concern Nuon, who contracted Van der Molen and Stikker to design EPIs for its regional office in the province of Friesland. The design they made is similar to what is now a widely used approach in private sector: a materiality analysis.

Paving the way for Corporate Social Responsibility in the Netherlands

"The work we did can be classified as groundbreaking at the time. We made environmental performance of private sector stakeholders measurable and steerable, in the form of key performance indicators, and put it

on the business community's agenda. This is what later became known as Corporate Social Responsibility." These benchmarking studies were well received by some companies, the frontrunners, but others kept quiet. "We were able to get into a lot of board rooms of multinational Netherlands-based companies, but not all of them saw the incentive to act. This would be unthinkable today, as most of the companies based in the Netherlands have a certain level of sustainability reporting in place. I'd like to think we were an important factor in making that happen within the context of the Dutch private sector."

Taking the sustainability message to a wider audience

"The project with EMF had a large influence on the professional career of Folkert van der Molen himself. After PwC he joined engineering firm DHV (now Royal HaskoningDHV), where in 1999 he established the advisory group on CSR with Rob van Tilburg. This advisory group played a leading role for many years. "When in 1998 I was invited to the 'sustainability congress' by Rabobank, via Mr. Stikker, I realized that the sustainable business model was increasing in popularity. Inspired by this event, I started the annual Dutch National Sustainability Congress. This was held for the first time in 2000 and is still the largest annual sustainability event in the Netherlands." Today, Van der Molen still works on the frontline of promoting

sustainable practices in business. He is the marketing manager at the CSR consultancy Sustainalize and owns a company specializing in the management of several web portals on sustainable business."

How do you look back on your collaboration with EMF? What were its particular strengths?

"We collaborated a lot with EMF and were always learning together. Our joint projects were only possible because EMF put in three things: money, technical skills and expertise, and a lot of enthusiasm. There are thousands of NGOs doing aid work, but what made EMF unique was that it was always about ideas, excitement, and humor. "





Sujol Project: Piloting Technology for an Arsenic-free Bangladesh

Since hand pumps were installed to supply the population with drinking water, some 77 million people in Bangladesh have been exposed to contaminated groundwater. Among them 10 million people was drinking highly toxic water every day. As a result of this, one third of the Bangladeshi population faces serious health problems.



Partners

Voltea, AkvO, Proportion, Partners voor Water, Microwaterfacility (MWF).

Addressing this issue, EMF published an assessment of the available technologies for removing arsenic from water in Bangladesh in 2009. The report was compiled by Dorota Juchniewicz as part of her Master's thesis in chemical engineering and supervised by EMF chairman Allerd Stikker. The study found the technology developed by Voltea – a Unilever spin-off – to be the most reliable and versatile technique. This CapDI technology is able to remove arsenic from the water by using very little energy, thereby producing little waste and making little use of chemicals. This finding led to the start of the Sujol Project, aimed at bringing this purification technology to the Bangladeshi market.

Activities

In 2010, a pilot was launched to test the purification technology in the field in Bangladesh. The pilot was made possible through a grant of the Netherlands Water Partnership to a consortium composed of EMF, the Dhaka Ahsania Mission (DAM), Voltea, the Proportion Foundation, Micro Water Facility and Akvo.

In a two-year period, Sujol was rolled out as a carefully managed stage-gated project. After completion of the exploratory stage of analysis and feasibility studies, the trial phase started, aiming to combine innovative technology with a communication platform and entrepreneurship. In May 2012, the first CAP DI device was producing safe, sweet and clear water.

Subsequently, in 2013 two other plants were up and running, managed locally by water entrepreneurs. EMF invested in building the investment case for the Sujol technology and ensured the knowledge transfer of this technology to technicians of the Dhaka Ahsania Mission (DAM). The end of the pilot saw the Cap DI technology improving rapidly in performance and cost price. In addition, a commercial pilot revealed that locals were willing to pay for Sujol drinking water.

Impact

The trial phase finished successfully in late 2013, with over 1,700 clients reached. Partners were left with clear evidence and parameters to be used for rolling out the Sujol business case on a larger scale. During the project years, Sujol became a brand and business concept that provides clean, safe and tasteful drinking water to the poor in Bangladesh. ProPortion, a social business developer and project-partner, continues with the Sujol concept and works towards large scale application through a concept of local micro-entrepreneurs. The CapDI technology is on its way to become widely available, as Voltea has plans to enter the market place in Europe and USA for industrial and commercial applications in the coming years. Recognizing the success of micro water entrepreneurship, EMF used the water kiosk idea again in the Rain for Sale project that started in 2016.



People filling up their water bottles with clean drinking water at the first water kiosk of the Sujol project in Bangladesh.





WaterSchools Program

Since 2010 the WaterSchools program – a joint initiative of EMF and the Alliance of Religions and Conservation (ARC) – has promoted sustainable clean water and sanitation facilities in faith-related schools. The idea was that providing children with access to clean water and sanitation would facilitate proper hygiene, leading to a reduction in water-related school absenteeism and, in the long run, to a community-wide reduction in water-borne diseases.

Activities

The program worked with the faiths to find sustainable and cost-effective solutions to environmental and water-related issues at schools through training and faith-based education programs. Enablers were trained to implement and monitor the projects. A further activity was building networks of faith schools, faith representatives, secular organizations, and water experts to support and further promote the aims of the program.

Impact

Faith-based networks have become powerful catalysts for rapidly scaling up WASH (water, sanitation and hygiene) projects. They have a positive impact on the health and wellbeing of children in faith schools in the developing world, thereby enabling them to complete their

education. They enable and encourage good environment, water, sanitation, and hygiene practices, which are then passed on to the children's families and the wider community.

EMF continued providing support to WaterSchools through access to its network of innovators and portfolio of techniques until 2014, when the project was handed over to Faith in Water.



This picture shows children washing their hands at their new hand washing facility, at Nakashure Primary School, Uganda as part of the Water Schools Program.

Frederik Claassen

Frederik Claassen became involved with Micro Water Facility (MWF) as a business developer in 2007. At that time MWF was a separate foundation initiated by EMF, with Allerd Stikker in the board. MWF was an accelerator that supported WASH projects, with a strong focus on applying technology to find answers to wider development questions. Frederik worked with MWF, EMF, and Aidenvironment until 2016. He is now Impact Investment Manager at Solidaridad.

What did you focus on in MWF?

One of the main projects I worked on for four years, from 2011 to 2015, was called Sujol. Sujol was about applying the new Voltea technology to clean up polluted groundwater and solve the drinking water problem in Bangladesh. EMF had started supporting Voltea on the condition that the technology – once developed – would become available to solve the drinking water problem in developing countries. Sujol was founded on this promise. We worked on a

scalable model with kiosks that sell clean water to people in rural Bangladesh. A very special moment for me was when the first factory produced water and we saw how incredibly happy the people were, with a line of women waiting to fill up their water bottles, and when we first saw the evidence that we could really generate an income from selling water. It was a huge breakthrough, being able to market water.

Challenges and learning

During this process we were confronted with challenges, such as technology that broke down and some people's reluctance to pay for water. While we overcame most of these challenges and learned from them, the technology was still young and vulnerable in the difficult circumstances of Bangladesh. Unfortunately, the technology did not break through at that time and it subsequently became lower priority for Voltea, so eventually we had to stop, which was a shame. I believe it was a promising technique and would have made it if it had been further developed before implementation. However,

with the RAIN team at Aidenvironment we developed the idea of water kiosks to create the Rain for Sale concept. We looked at how we could make rainwater harvesting commercial by developing a strong business case to back it up. Rain for Sale is now being implemented by Aidenvironment.

What did you take away from your time at MWF?

“MWF was my first experience of setting up a local enterprise to try to turn innovative technology into a commercial success. Overall, I think MWF was a very successful project, because it was able to effectively manage the pipeline and develop companies that now play a key role. In my position at Solidaridad, I am now also starting an accelerator. I can apply everything I learned at MWF in setting up this accelerator, which helps farmers and business partners to start companies and turn them into a success. I also learned a lot from working closely with Allerd. Besides being a strong business manager, he is a real idealist. He opened up a world of innovation and thinking about how you can change things from an unexpected angle, like working with religious communities to change access to water for people. It is valuable to take that viewpoint and to be open to things that are considered ‘impossible’.”

What made EMF unique?

“EMF had a business outlook on development cooperation. This made EMF a pioneer of the

current focus in the development community on business cases and private partnerships. A particular accomplishment of EMF was its ability to take a problem, deliver a solution and have the courage to test it and then let it go. This concept was demonstrated several times and continues to have an impact, for example in Sujol, Faith in Water, and Rain for Sale. EMF was open to fresh ideas and the risk of making mistakes – which is important for learning, innovation, and growth.”





EMF as business incubator: Safi Sana – starting a business in waste recycling

Safi Sana Holding is a social enterprise founded in 2010. It is owned and run by a foundation based in the Netherlands, but collaborates with Ghana Ltd (SSGL) as a 100% owned local subsidiary for project execution and operations. Safi Sana manages projects that design, build, and transfer Safi Sana waste recycling plants to operators. After transferring the plant Safi Sana closely monitors performance.

EMF has supported and advised Safi Sana in the start-up phase, for example by developing an investment memorandum with the business owners in 2016.

Operations: Safi Sana operates on a “not for profit, not for loss” basis. Its plants treat and recycle organic waste (pee, poo and waste from food) and produce energy (biogas and electricity) and compost plus seedlings. Safi Sana plants sell these products to the state-owned energy companies and farmers in Ghana. Waste is turned into a valuable resource. Selling products recycled from waste generates revenue that is used to cover operational costs.

Impact: Safi Sana’s objectives are to recycle waste to improve the hygiene conditions of the population, improve soil fertility and reduce local energy deficiencies. Safi Sana’s first waste treatment plant is currently operating in Accra, Ghana. Recently Safi Sana closed a contract with the Ministry of Energy to deliver electricity to the grid.







Rain for Sale: Uganda, Rwanda, and Ethiopia

Rural and urban communities in many developing countries face the threat of water shortages caused by increased seasonality of rainfall, often a symptom of climate change. Rainwater harvesting – catching the water and storing it for later use during dry periods – can improve not only the availability of water, but also access to it. Rain for Sale, the last project funded by EMF, promotes a practice that might seem counterintuitive: paying for rainwater that falls freely from the sky.

Idea

The Rain for Sale project proves the business case for rainwater harvesting for local entrepreneurs. Instead of donating a water tank to a community, a local business woman or man invests in part of the tank and the remaining costs are loaned in a five-year repayment scheme. After installation of the tank on the rooftop, the tank owner is able to earn an income by selling the rainwater from his or her tank to the local community and repay the loan from the proceeds.

Before the project starts, a scoping study assesses the willingness to pay for rainwater among the local communities. In the dry season in particular, people have to walk a long way to get water and are happy to pay a

small amount to reduce the time spent fetching water. Moreover, rainwater is one of the cleanest water sources and can be used as drinking water directly from the tap.

Activities

The project was piloted in Uganda in 2016 and four entrepreneurs were selected from 28 applicants. Once the first sales and loan repayments were coming in, a follow-up project was implemented in Rwanda with combined funding from EMF and VIAwater. Benefiting from the lessons learned in Uganda and in close collaboration with our local partners, seven entrepreneurs in Rwanda made their first sales at the end of 2018.

Impact

High sales from both Uganda and Rwanda mean that all the entrepreneurs are well on their way toward repaying their loans. At the end of the five-year repayment scheme they will be able to keep all the profits. The financial investment and ownership of the tanks are incentive enough for the entrepreneurs to take good care of their tanks.

Rain for Sale Ethiopia will be launched in 2019.

RAIN envisions further upscaling once the final loan repayments in Uganda and Rwanda are concluded and the concept has been proved successful in the long term.



Diane Ndukiye

Diane Ndukiye works for RAIN (Brand of Aidenvironment) as a Young Expert on the Rain for Sale Project in Rwanda Since August 2017. The Rain for Sale project was co-funded by the EMF foundation.



This project turned rainwater harvesting into a very important practice and into a serious business case.

What is so special about the Rain for Sale project?

“The Rain for Sale project brings added value to the local practice of rain water harvesting. In Rwanda, everyone has a habit of harvesting water, both in dry and wet areas. But usually it is only harvested for Today or Tomorrow. This project turned rainwater harvesting into a very important practice and into a serious business case. All selected entrepreneurs are highly motivated, which is great to see.”

What have you learned from your involvement in the project?

“Managing the project enabled me to grow as a professional in the development sector. I used to work in a community context where my social life and work were intertwined. When I joined this project, at first it was very difficult to see the two as separate. In this project, I have to act as the eyes and ears of RAIN and make sure we get the right information from our implementing partner. This means I might have to ask some difficult questions to people I just had a lunch with. This was a challenge at first, but I learned to put professionalism first. In the end, the results don't lie and I always want to work in a transparent and honest manner. Nowadays, I can ask politely without hesitation.”

What are your future ambitions?

“I want to continue in this line of work. I have an idea to implement but am still looking for funding to be able to do so. It concerns a project aimed at improving the hygiene situation of women and children, who struggle with water availability for things like washing and showering. I think this idea could make a lot of impact. For now I will not give away more of the idea, because I don't want somebody else to use it.”

What has been your most memorable moment within the project?

“The best moments for me were when we would travel to communities to explain about the project and ask about their interest. I was happy to find that that every time I was asked a question, I knew the answer. This made me feel in control and happy that I was contributing to this great project.”

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15 significant EMF projects

This overview briefly summarizes which projects EMF has initiated over the years. For each project the topic, the participants and the result are provided.

I. 1989

- Topic:** Balancing Economic growth and environmental protection"* on the island of Taiwan. The so-called Taiwan 2000 project.
- Participants:** Asia Foundation, Rockefeller Brothers, Philips Taiwan, KLM, National Taiwan University, international experts from the United States and the Netherlands.
- Result:** In 1989 the result was presented on a congress in Taipeh in the presence of the government. The environmental policy of Taiwan was changed drastically.

* This project and the experience gained with it was the reason for formally establishing EMF in 1990.

II. 1990 – 1993

- Topic:** Environmental Performance Indicators" for the corporate sector.
- Participants:** AKZO, DSM, NUON, Heineken, Coopers & Lybrand. NV Luchthaven Schiphol.
- Result:** The concept was accepted and published, after which it found its way in the Netherlands.

III. 1994 -1996

- Topic:** Environmental Performance Indicators" for the corporate sector.
- Participants:** AKZO, DSM, NUON, Heineken, Coopers & Lybrand. NV Luchthaven Schiphol.
- Result:** The concept was accepted and published, after which it found its way in the Netherlands.

IV. 1996 – 2002

Topic: New technology for desalination of brackish and sea water. Memstill
Participants: TNO, Eon, Waternet, Heineken, TU Twente.
Result: Memstill technology was finalized on a small pilot scale and handed over to the Keppel Group in Singapore.

V. 1998 – 2003

Topic: CEO Panel on Water: Partners in Dialogue and Action on Water, Business and Industry.
Participants: 13 multinationals from Europa, the United States and Japan, of which in the Netherlands Unilever (chairman), Heineken, NUON, DHV, RHK and Rabobank.
Result: Joint statement on the role of the corporate sector for the World Water Forum in 2000 in the Hague. On the World Water Forum in Kyoto in 2003 each CEO gave a personal presentation with practical examples from their enterprise to provide evidence for the 2000 declaration.

VI. 2000

Topic: Documentairy “Water, the drop of life”.
Participants: Swynk, Alexandra Jansse and Joost van Loon.
Result: In 2000 the documentary was presented during the World Water Forum. After that, the three-part series was broadcasted on

television in the Netherlands, Europe and the United States.

VII. 2002

Topic: Documentary “A dollar a day”.
Participants: Stichting De Oude Beuk, Alexandra Jansse and Joost van Loon
Result: The three-part series was broadcasted on the Dutch television, in Europe and the United States.

VIII. 2003

Topic: Fresh Water Innovators Network (FWIN).
Participants: Aqua Aero Systems, Solar Dew, Sun Water Systems, Swilion and Teamwork Technology, TNO and Zonnewater.
Result: Difficult to get started. Later FWIN was replaced by the Micro Water Facility.

IX. 2005

Topic: “Daoist Ecology Temple Network” in China.
Participants: Alliance of Religions and Conservation (ARC, UK), WWF China and Louguantai Temple complex (Master Ren).
Result: After 500 temples had joined and it was decided to expand the project to 10,000 temples throughout China, the initiative was taken over by the “Chinese Daoist Temple Community” with approval of the Central Government in August 2018. The

handover took place during a large conference that was specifically dedicated to this in the temple complex of Maoshan, in presence of Martin Palmer (ARC) and Allerd Stikker.

X. 2005

Topic: Entrepreneurship and poverty reduction. 4-part TV series
Participants: Heineken, Waterleidingbedrijf Amsterdam, DSM, Unilever, Vitens, TNT, Rabobank, Oikocredit.
Result: Broadcasted on Twee Vandaag

XI. 2006

Topic: New water purification technology including desalination, Capacitive Deionisation (CAPDI) (Voltea).
Participants: Unilever Ventures, Rabobank, American and British venture capitalists. EMF represented in the Board.
Result: As it seems, the project will be completed successfully with an exit around 2021.

XII. 2006

Topic: Clean water supply at religious schools in developing countries
Participants: Water schools.
Result: ARC (UK) and EMF. In 2017 the project has been transferred to an independent foundation under the name of “Faith

in Water”, which is implementing projects in Africa with the support of DIFID (UK).

XIII. 2008

Topic: Water supply in developing countries.
Participants: Documentary: The Blue Gold, Prince Willem Alexander, Hans de Ruiters, Marcel Quartel, NCRV, Amrev Flying Doctors. Cleanwater Now, Aqua Aero Water Systems, Water-right, Vitens, Friesland Foods, Nederlandse Vereniging van Waterschappen, SNS Reaal.
Result: Broadcasted on NCRV television.

XIV. 2010

Topic: A broker’s function for small water projects in developing countries.
Participants: Micro Water Facility
Result: EMF with Frederik Claassen In the transfer of EMF to Aidenvironment, MWF (Micro Water Facility) has been integrated into Aidenvironment.

XV. 2010

Topic: Arsenic in drinking water Bangladesh, Sujol Project.
Participants: MWF, Ministry of Development Cooperation (DGIS), Voltea.
Result: Project was put on hold in 2013. Voltea technology was not yet ready and no good partner in Bangladesh was found.



