

CHAPTER 7

Creating Shared Value through Open Innovation¹

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INTRODUCTION

“For a company to be successful over the long term and create value for shareholders, it must also create value for society. At Nestlé, this begins with the creation of superior long-term value for shareholders by offering products and services that help people improve their nutrition, health and wellness.” Peter Brabeck-Letmathe, Chairman of the Board, Nestlé.

Any business that has a long-term perspective and follows sound business principles, creates global value for society through its activities — for example, creating jobs for employees, paying taxes to support public services and general economic activity. Creating Shared Value (CSV) goes one step further through consciously identifying areas of focus where shareholders’ interests and society’s interests strongly intersect, and where value creation can be optimized for both — a perspective articulated well by Porter and Kramer (2011). The choice of focus areas leads to decisions on investment in talent, capital, research and development, where the potential for joint value creation is greatest (Nestlé, 2015).

At Nestlé, we analysed our value chain and determined that the areas of greatest potential for joint value optimization with society are water, rural development and nutrition. These activities are core to our business strategy

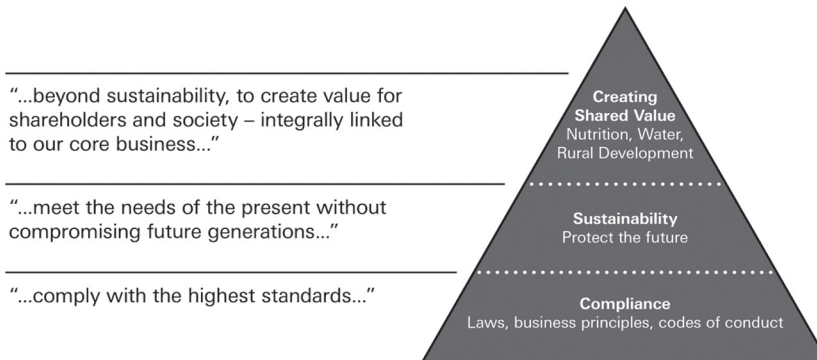
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and vital to the welfare of the people in the countries where we operate. We actively seek engagement and partnerships with stakeholders that optimize positive impact in these areas of focus. Importantly, CSV is not about philanthropy; it is about leveraging core activities and partnerships for the joint benefit of the people in the countries where we operate and for our shareholders. These projects and activities need to be sustainable over time rather than one-off arrangements.

Our ambition to be the leading Nutrition, Health and Wellness Company is at the heart of our corporate strategy and what we live for as a company. We are investing for the future through our network of research centres and expanding the boundaries of nutrition with the Nestlé Institute of Health Sciences and with our two new companies, Nestlé Health Science and Nestlé Skin Health. A deep understanding of nutrition, and access to tastier and healthier food and beverages, is what people demand and what society needs. Our global commitments on research, product reformulation and innovation, nutrition labelling, responsible marketing to children, and promotion of healthy lifestyles help ensure effective implementation. However, as shown below, the complexity of this mission requires leveraging beyond our own footprint and engaging with academics and entrepreneurs.

Creating Shared Value should not be confused with compliance or sustainability. It is built on the foundation of a strong compliance culture and commitment to sustainability, but it goes beyond those and aims to create new and greater value for society and our shareholders within the three areas of focus. In doing so, Nestlé maintains a very long-term perspective on business development and welcomes dialogue with external stakeholders who are committed to principled behaviour and constructive engagement. This includes government and regulatory authorities, intergovernmental organizations,

Figure 1: Creating Shared Value



non-governmental organizations (NGOs), academic and professional bodies plus local communities, many of whom we partner with on CSV initiatives.

Water is an essential component of good nutrition and, at the same time, a human right and the linchpin of food security. We actively promote healthy hydration at all ages, while making every effort to reduce water use in our own operations and advocating for inclusion of a specific goal on water in the post-2015 Sustainable Development Goals. Water is an important pillar of our business, an operational challenge and a societal issue that is of deep concern to us all.

Likewise, **rural development** and our work with farmers, combined with our Responsible Sourcing Guidelines, help address the need to build sustainable farming communities, and also to answer our own consumers' concerns to know "where does my food come from?" Our rural development work helps secure the quality and quantity of supply of our key categories, increasing the attractiveness of farming for future generations.

We continue to actively manage our commitments to environmental and social sustainability, necessary for operating our factories and for the sustainable growth and development of the communities and countries where we operate. Our commitment to youth employment, called the Nestlé Needs YOUth Initiative, helps strengthen and develop the skills and employability of young people across Europe. This programme will soon be extended globally.

Our third CSV area, **nutrition**, focuses on the unmet nutritional needs for micronutrients. Here again, while deficits are observed worldwide, the most sensitive populations are found in developing countries and emerging economies.

The following three case studies illustrate different aspects of our engagement in CSV in water, nutrition and rural development, and illustrate the key role of partnerships and innovation in achieving our CSV objectives.

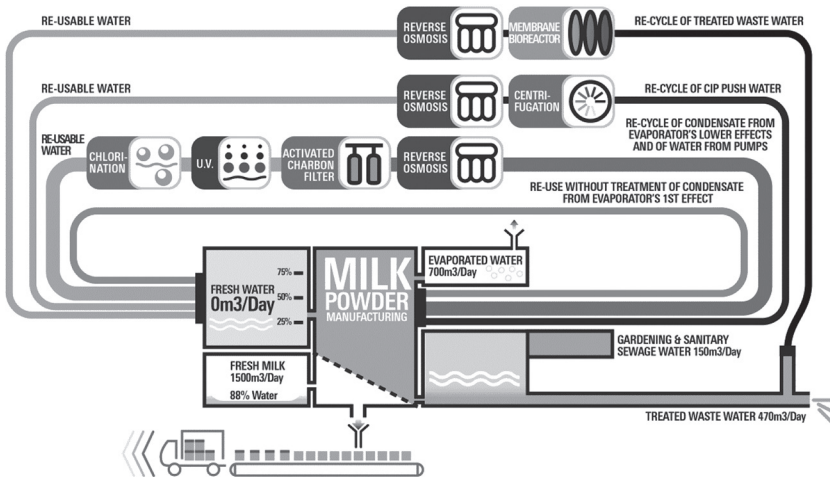
WATER

We have been working to improve the environmental performance of our factories. Over the past 10 years, production volumes have increased by 61%, and yet absolute water consumption has decreased by 16%, greenhouse gas emissions by 14% and total waste for disposal by 51%. This is due to quantitative targets and a strong focus on continual improvement. However, we felt that this was not sufficient, and that a more radical approach was required. We were stimulated by John Elkington, a thought-leader in Sustainability, and his book entitled *The Zeronauts* (2012). His premise is that to stimulate creativity and devise entirely new solutions and ways of operating, the target should be zero rather than purely continuous improvements. This has led to

an approach across our operations and manufacturing activities that we call “Going for Zero”: Zero Environmental Impact, Zero Injuries, Zero Defects and Zero Waste.

It was in this context that our Dairy business challenged the organization with the following questions: Why do we need to use an external water supply when we produce milk powder? Why can't we use the water that is already in milk, since the majority of our dairy factories produce powdered milk from incoming liquid milk? Project “ZerEAU” was born with the aim of having a positive water impact with a net discharge of water instead of using ground water supply. A study evaluated priority factories based on the level of water scarcity in the region and production levels. Our factory in Lagos de Moreno, in the water-stressed state of Jalisco, Mexico, was selected as the pilot factory for implementation. Water availability in Mexico has drastically declined over the past 60 years due to population growth. Through close collaboration with our research and development organization and operations, together with the support of a series of technology providers and suppliers, the factory is now saving 1.6 million litres of water a day — enough to meet the average daily consumption of 6,400 people in the surrounding area. The water vapour is generated when evaporated milk is condensed and then treated. Technologies include reverse osmosis, membrane bioreactors and centrifugation to purify the water to the required level for use as potable process water or for cooling or cleaning. The process is being replicated in locations such as South Africa, where our five-year investment plan includes converting our Mossel Bay dairy factory to Zero Water, and technology transfer has already taken

Figure 2: Schematic diagram of the “ZEREau” factory where water is treated, circulated and re-used many times



place to reduce water consumption in other stressed areas like the Indian Punjab and Pakistan.

Investments such as these do not always meet the normal internal pay-back criteria since, paradoxically, the price of water is often low in water-stressed regions. For this reason, we have adopted an approach where we calculate a “notional” cost of water — this includes a conversion factor to take into account water availability, and this cost of water is then used to calculate financial pay-back.

NUTRITION

Micronutrients are essential for growth and development. However, deficiencies or inadequate dietary intake remain a challenge for an estimated one-third of the global population. The WHO and FAO (2006) estimate that over 2 billion people around the world, mostly young children and women of child-bearing age, suffer from deficiencies in micronutrients (i.e. essential vitamins and minerals, of which the most prevalent are iron, zinc, iodine and vitamin A). This is commonly termed “Hidden Hunger” (1st International Congress Hidden Hunger, 2013; 2nd International Congress Hidden Hunger, 2015). Nestlé is committed to helping address micronutrient deficiencies, for example, by using information from national and international health authorities to provide fortified, affordable and nutritious foods and beverages in areas with a high risk of deficiencies.

With this objective, Nestlé has been fortifying products with micronutrients for many years, and in 2014, products corresponding to 183 billion such servings were sold (well on track to meet the external public commitment of 200 billion servings by the end of 2016). Many of these products reach low in the socio-economic pyramid and include bouillon cubes, all-family cereals and growing-up milks. However, there are limitations to the direct addition of micronutrients in terms of taste, colour and stability of products. For this reason, a programme was initiated on biofortification, which involves developing and sourcing conventionally-bred staple crops (non-GMO) which are naturally rich in these micronutrients. Agricultural research institutes around the world within the CGIAR organization (a group that unites those engaged in research for a food-secure future) have been very active in developing such new varieties with funding from the Bill and Melinda Gates Foundation through the NGO Harvest Plus. In addition to micronutrients, it is essential that yield and disease resistance are at least as good, if not better, than the varieties currently grown in these regions. Nestlé’s research and development unit in Abidjan, Côte d’Ivoire, has been working with the International Institute of Tropical Agriculture in Nigeria to evaluate new varieties of vitamin A-enriched maize that we plan to use in all-family cereals. Biofortification

requires detailed study and analysis of the many factors that determine how a crop grows and working closely with the farmers who will harvest it. For example, we are establishing a supply chain for vitamin A-rich maize in north Nigeria, where the average yield of maize is currently only 1-2 tonnes per hectare. Our aim is to significantly improve yield, while at the same time providing the fortified crop for our own supply chain and for direct consumption by the local community to help improve the nutritional status of smallholder farmers and their families.

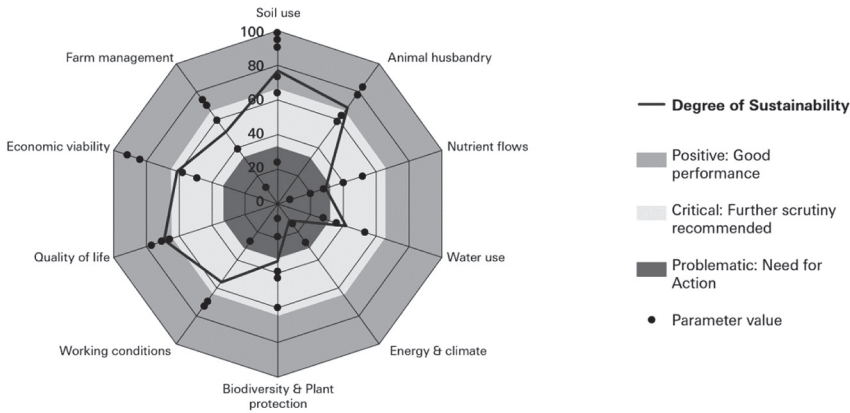
We are committed, through these means, to continue to intensify efforts to extend our reach to vulnerable populations, notably mothers and children. We pursue scientific research in this area and document the contribution of our products in addressing the burden of micronutrient deficiencies. In doing so, we work in a collaborative manner with NGOs and other relevant partners to further improve people's nutrition and health.

RURAL DEVELOPMENT

Nestlé relies on millions of farmers around the world to supply us with the agricultural raw materials we need for our products. More than 695,000 farmers supply Nestlé either directly or through co-operatives and collection centres. These farmers and farm workers are essential to the on-going success of our business. Through the Farmer Connect program, farmers are assisted with agricultural support and capacity-building programs to increase yields, crop quality and income levels, and to reduce the environmental impact of agricultural activities. A Rural Development Framework has been established to help align business activities with local priorities. Nestlé has also reinforced its responsible sourcing commitments, guidelines, policies and standards, supplier assessments and traceability activities, as well as the Nescafé and Cocoa plans to improve the lives of farmers, the quality of their crops and their social conditions. In 2014, 376,000 farmers were trained through capacity-building programs.

One of the specific means which is used within the rural development context is the RISE methodology (Response-Inducing Sustainability Evaluation) (Grenz *et al.*, 2011; Häni *et al.*, 2003), which is a powerful tool to develop farmers and make sustainable agriculture measurable, communicable and tangible across a number of agricultural raw materials, including milk, coffee, cocoa and vegetables. The RISE tool was developed by the University of Bern in Switzerland and uses 10 indicators (rated from “problematic” to “good”) to assess and improve sustainability at a farm level, including the environmental, social and economic aspects. Data collected by Nestlé sourcing staff is analysed for strengths and weaknesses, with scores given for the 10 indicators.

Figure 3: Summary polygon of 22 farms analysed using the RISE methodology in the region of Lagos de Moreno in Mexico



Results are then discussed and potential action plans suggested, in personal meetings with the farmers.

Education and training activities are also targeted specifically towards women farmers, to help empower them and strengthen their role in the supply chain. This may lead to greater yields of higher-quality crops, increased incomes and higher standards of living. For example, in Côte d'Ivoire, cassava is an important part of the local diet, but faces supply chain challenges including disease and pest infestation, insufficient post-harvest processing and low levels of commercialization of the crop. Through an on-going public-private partnership, with Swiss and German organizations working alongside the Ivorian National Agricultural Extension Agency, Nestlé has helped to develop the cassava supply chain, working with 4,000 producers, 78% of whom are women. This has involved using a non-GMO, high-yield, disease-resistant variety with the appropriate properties for commercial starch production, and working with local producers to improve the collection and transportation of raw cassava to our factory.

Making Creating Shared Value a reality and delivering on our 38 external commitments is only possible through a collaborative approach. The case studies included in this paper illustrate diverse examples of open innovation with academia, NGOs, entrepreneurs and major companies in the private sector. This approach is essential to address the issues and opportunities across the entire value chain encompassing agricultural production, the supply chain, processing and production by Nestlé, through to point of sale and final consumption. Nestlé reports annually on the company's CSV progress, with our 2014 CSV document recognized by CR Reporting Awards 2015 as the best corporate responsibility report. Open innovation now extends beyond

the boundaries of CSV, and the following sections address our main goals and way forward to better connect with the surrounding science and technology world.

OPEN INNOVATION: A WIN-WIN FOR INDUSTRY AND ACADEMIA THAT SHOULD INCLUDE EMERGING ECONOMIES

No company can be truly innovative by working alone. Open innovation adds synergistic value where internal capabilities cannot match an unmet business need. It opens up the organization to external opportunities by efficiently locating, selecting and delivering the right innovations for the company and effectively leveraging an opportunity. In an R&D-driven organization like Nestlé, it is essential to harness the best knowledge externally with capabilities internally; the capacity to understand and translate science into commercial opportunities is essential for companies to lead in their field.

The foundation of most innovation is laid by visionary scientists. Hence, collaboration with academia is essential for companies like Nestlé, allowing us to scout for the best-in-class science. Working with leading academic institutions enables companies to benchmark and compare current in-house capabilities with global scientific trends.

For example, with Nestlé Health Science, Nestlé has the ambition to champion the role of nutritional therapies which have proven clinical and health economic value, and improve the quality of people's lives. The company focuses on three areas:

- Consumer Care addresses specific health conditions with an emphasis on enhancing “healthy ageing”;
- Medical Nutrition supplies hospitals and other healthcare facilities; and
- Novel Therapeutic Nutrition works on new nutritional therapies against specific diseases and conditions.

Nestlé Health Science requires competences that go beyond today's general know-how and existing capabilities. It was for this reason that the Nestlé Institute of Health Sciences was founded on the campus of the École Polytechnique Fédérale de Lausanne, thus leveraging on the presence of experienced scholars and committed students.

Another example for a visionary public-private partnership is the Nestlé research collaboration with the EpiGen Consortium, an international alliance of the world's leading epigenetics researchers from institutions in New Zealand, the United Kingdom and Singapore. Its research programme aims to understand and substantiate optimal nutrition for mothers during pregnancy

and for infants, to promote optimal metabolic health throughout life. These objectives will serve mothers across the world, but should have particular relevance in countries where under-nutrition is a serious risk. The experienced network provided by the EpiGen consortium is of paramount importance to achieve our goals in a spirit of open innovation.

Academia should also significantly benefit from long-term collaborations with industry partners. Besides the obvious funding, the relationship should allow academic researchers to understand industry practices and technology goals, and what commercial success looks like. This is important for students who may join industry, and especially relevant in applied research areas such as engineering or biochemistry. For example, by considering all aspects from proof-of-concept to successful production and commercialization, an initial scientific experiment is more tailored towards a final product. A mutual understanding of the long-term timeframe is needed to develop a breakthrough innovation, while the desire of business to commercialize its product is essential for successful innovation.

Overall, industry collaboration can make an academic institution a more attractive place of study for young scientists. Additionally, in today's competitive environment, it allows companies early access to a rich source of state-of-the-art knowledge and an exceptional talent pool for recruitment. This is also true in developing regions of the world, where our CSV approach will contribute and bring benefit to training the next generations of food scientists and engineers.

Recognizing we operate in a fast-paced, volatile world, what is essential for the success of future public-private partnerships between academia and industry?

Open innovation requires an excellent education system. Successful innovation is dependent on the education base of students and employees. This includes not only competences and creativity in science and research, but also production, marketing and sales, as well as new business models to be developed for future innovations. The world-leading institutions in engineering (MIT), management (Harvard), finance (Columbia) and law (Yale), all in one Boston-New York corridor, created a unique cluster and talent pool, traditionally accounting for industry dominance and wealth creation in the region. More clusters are being created around the world, including in emerging markets.

Open innovation requires an eco-system of concomitant industries and academic excellence to generate a cluster effect. An innovative company like Nestlé is dependent on suppliers, industry and academic partners who can deliver best-in-class equipment, services, research and innovative concepts. Infrastructure such as transportation, good living standards and communications are essential to attract qualified workforces and ensure global exchange

Figure 4: World Competitiveness Index, 2014

World Competitiveness Ranking 2014 (selected countries, normalized scale)



Source: IMD World Competitiveness yearbook 2014

of ideas. Singapore's transition from third world to first in about 30 years is attributed mainly to getting its infrastructure right and its clean governance, leading to international players investing and skilled foreign talent arriving onto its shores. Its focus on public-private partnerships and making it easier to do business has led it to consistently achieve the top rankings in the World Competitiveness Index in recent years (2014 ranking: #1 USA; #2 Switzerland; #3 Singapore; #4 Hong Kong; #6 Germany; #16 U.K.; #24 Israel).

Open innovation requires a sound and stable research and academic environment. Innovative companies conduct proprietary research and product development. However, alone, they can seldom cover all the necessary competencies. Companies focus internal research and development on their strategic business areas. As science and basic research are often commercially not yet viable, it requires public funding to build the necessary foundations for future successful innovations.

Future company growth cannot rely solely on internal efforts and capabilities. Solving the future challenges of society requires physically stepping into innovation clusters to support and build a vibrant innovation eco-system. Academia is essential to drive this development. What needs to be done to foster future entrepreneurship? Focus must be given to educate and train entrepreneurs. Concretely, early stage venture funding is required to encourage young scientists to create their personal spin-offs. Would companies like Google or Facebook exist today without the entrepreneurial spirit of their founders and the risk capital of visionary investors? The sheer number of start-ups out of academia (centred on Stanford, Berkeley and others) and the huge market capitalization created by the thriving venture capital eco-system have resulted in California establishing itself as an economy of its own, with

numerous business-friendly governments around the world wanting to copy and create their own version of a Silicon Valley. In the Global Innovation Index 2014, countries have been ranked according to innovation capabilities (based on number of researchers, gross expenditures on R&D, ranking of the top 3 universities) and knowledge and technology output (number of patents and publications, growth rate of GDP, business density, high- and medium-tech output) as follows: #1 Switzerland; #2 U.K.; #3 Sweden; #6 U.S.; #7 Singapore; #15 Israel.

Although early venturing can be high-risk, funding models need to be established jointly with industry to share risk while fostering breakthrough innovation in all science and technology areas. Within such an environment, companies are capable of establishing proprietary incubation hubs with an entrepreneurial mind-set and the necessary funding to enable breakthrough innovation. The most prominent example for Nestlé is Nespresso, which has been kept separate from the main organization to ensure the necessary start-up spirit, which results in today's success.

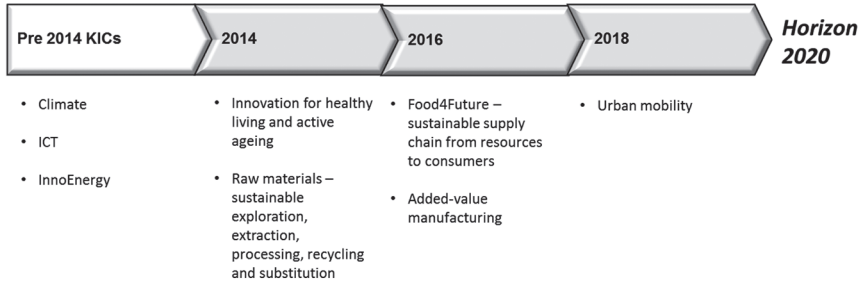
Universities can and do provide locations and office space, allowing start-ups to build their operations. This needs to be complemented with business plan competitions and business acceleration phases whereby start-ups can meet industry partners, customers, venture funds, business plan consultancies and start-up mentors. Learning from others and building on each other's ideas creates the breakthrough innovations of the future. Industry may use such a set-up to spin off non-core but innovative business ideas in order to ensure return on its research and development investment. These structures can be seen as true incubators, allowing small start-up businesses to grow to a relevant scale, as large companies are often reluctant to cover significant losses in their P&L to build up new business beyond their core competences.

Although several incubation clusters can exist in parallel, it is also important for universities to join forces between each other to achieve a critical mass with respect to the number of meaningful business ideas to be created, and to attract enough venture money for the required early start-up funding. Such clusters should extend beyond the frontiers of technologically advanced countries, in order to foster innovation and entrepreneurship in developing countries and emerging economies.

Driving meaningful innovation is tightly linked to the success of these open incubation clusters and a close collaboration between industries, academia and venture industry. Therefore, Nestlé strongly supports the efforts of the European Union and its Knowledge and Innovation Communities (KICs) (European Institute of Innovation & Technology, 2015) with the expected call for a food and nutrition KIC in 2016. Through these models, companies like Nestlé achieve their innovation ambition to significantly improve the impact of future investments in R&D, and stay ahead of the competition. We

Figure 5: EIT Strategy, 2014-2020

European Institute of Innovation & Technology (EIT): Strategy 2014-2020



Source: European Institute of Innovation & Technology, a body of European Union, 2015

look forward to similar opportunities bridging advanced and developing countries in a joint effort to stimulate shared growth and common values.

In summary, companies must embrace a culture of engagement to be innovative, one of transparency and sharing, inside and outside their organization. In doing so, the results obtained will be greater than the sum of their respective efforts.

CONCLUSION

In modern societies, large companies are often criticized for aiming for sustained global growth that is perceived as being generated at the expense of the local populations where they operate. Worse, as corporations engage further in responsible businesses, they face the increasing risk of being blamed for global societal failures. Consequently, governments may take actions and sanctions that undermine this emerging goodwill, thus creating a negative spiral of corporate disengagement. Nestlé's approach to Creating Shared Value addresses these concerns. By creating value for our shareholders, for the populations in the countries where we operate and for the population of the world as a whole, we generate growth that stimulates and improves people's quality of life in advanced as well as emerging economies.

Historically, open innovation has been established within the eco-systems of developed countries. However, the economic development of emerging countries will result in the expansion of open innovation thinking. Additionally, conventions such as the Nagoya Protocol on biological diversity and access to genetic resources (established in 2010) will result in future collaborations between the food and pharma industry, and national institutions in South America, Africa and South East Asia.

In 2012, the Nestlé Research Center in Lausanne formed a research partnership with the Council for Scientific and Industrial Research (CSIR) in South Africa. It is aimed at contributing to a range of research and development work based on indigenous South African biodiversity to evaluate the potential for nutraceutical and functional foods with proven health benefits. This partnership seeks to promote the reintroduction of highly nutritious — but neglected — native plants back into the community's regular diet, and future collaborations will follow.

In the future, by engaging with additional stakeholders and leveraging our global network to involve major universities in the countries where we operate, we hope to bring the concept of Creating Shared Value to an unprecedented “open innovation-driven” level for the global betterment of societies.

REFERENCES

- 1st International Congress Hidden Hunger (2013). “From assessment to solutions”, 6-9 March, University of Hohenheim, Stuttgart, Germany.
- 2nd International Congress Hidden Hunger (2015). “Childhood development and long-term prospects for society and economy”, 3-6 March, Stuttgart, Germany.
- Elkington, J. (2012). *The Zeronauts: Breaking the sustainability barrier*, Routledge, London.
- European Institute of Innovation & Technology (2015). *A body of the European Union*. eit.europa.eu.
- Grenz, J., Schoch, M., Stämpfli, A. & Thalmann, C. (2011). *RISE 2.0 field manual*, Bern University of Applied Sciences, Zollikofen.
- Häni, F. J., Braga, F., Stämpfli, A., Keller, T., Fischer, M. & Porsche, H. (2003). “RISE, a tool for holistic sustainability assessment at the farm level”, *IAMA International Food and Agribusiness Management Review* (6), pp. 78-90.
- Nestlé (2015). “Nestlé in Society: Creating Shared Value and meeting our commitments”, <http://www.nestle.com/csv>.
- Porter, M. & Kramer, M. (2011). “Creating shared value”, *Harvard Business Review*, January-February.
- The Global Innovation Index (2014). Co-published by INSEAD, Cornell University and WIPO (World Intellectual Property Organisation, an agency of the UN).
- The World Competitiveness Index by IMD Switzerland (2014).
- WHO and FAO (2006). *Guidelines on food fortification with micronutrients*, eds. Allen, L., de Benoist, B., Dary, O. and Hurrell, R., FAO. http://www.who.int/nutrition/publications/guide_food_fortification_micronutrients.pdf.