

The logo consists of a white trapezoidal shape with an orange top edge, set against a background of green and blue geometric patterns. The text 'Dutch Sustainable Growth Coalition' is centered within the white shape.

Dutch
Sustainable
Growth
Coalition

Sustainable Innovation

Game changing solutions for the world's grand challenges

Foreword



Lillianne Ploumen
Minister for Foreign Trade and Development Cooperation

I would like to congratulate the Dutch Sustainable Growth Coalition on the publication of “Sustainable Innovation. Game-changing Solutions for the World’s Grand Challenges”. The members of the coalition are frontrunners in the field of sustainability. Its new publication offers hands-on, sustainable business solutions to the world’s most pressing challenges.

The world has to address hunger, poverty and shortages of water and energy. I firmly believe that only cross-sectoral partnerships will enable us to address these global challenges. This calls for cooperation with new and sometimes unusual allies, all bringing their knowledge and know-how to the table. Such partnerships have a greater impact than any one partner can have on its own.

Global value chains are an example of an issue where government and business need each other and work well together. Public-Private Partnerships (PPPs) are crucial in order to tackle the different challenges in a coordinated and comprehensive approach.

These may be partnerships between importers, large retailers, brand merchandisers, industries and service providers. Governments protect public goals, provide local ownership, create favourable conditions and may contribute to the upscaling of programs. Through their global network, governments are able to connect the right partners and open new doors.

In the past few years, the Dutch government participated in more than 40 PPPs with Dutch and international business. And we will continue to promote this cross-sectoral instrument, which combines the best that all the partners - companies, government, knowledge institutions and NGOs - have to contribute. This is, as you will read in Chapter 3 of this publication, known as the ‘Dutch Diamond approach’. The term means that all partners work together on a common agenda and share the risks involved. PPPs are well suited to tackle complex problems in (private sector) development.

An example of our approach is the Dutch initiative ‘Potato Platform Kenya’. Here Kenya and the Netherlands work together in a project that started with selecting seed potatoes and is gradually extended to a great innovation of the value chain. Dutch input and technology providers have been connected to the Kenyan private potato sector, working together to enhance food security, creating better livelihoods for farmers, fair working conditions and less environmental impact.

The Dutch government is actively facilitating such partnerships. It acts as a broker, linking partners to initiatives, building on our knowledge, technologies and networks. I am proud of our work with the Dutch private sector, which has been a pioneer on sustainable partnerships. I believe that this will be an important contribution to our common agenda: achieving the Sustainable Development Goals and tackling the challenges of climate change.

The Dutch Sustainable Growth Coalition is setting an example for the private sector. I hope its work will inspire many more companies to follow in the irreversible trend towards a sustainable way of doing business. I would like to thank the DSGC for its efforts and wish it success in its work. And I hope this publication will provide lasting inspiration to its readers.

1. Introduction



Jan Peter Balkenende
Chairman, Dutch Sustainable Growth Coalition and Partner,
EY

Last year's United Nations Global Compact CEO Survey revealed that 78% of over 1,000 top executives surveyed see sustainability as an opportunity for growth and innovation. Eighty percent regards it as a route to competitive advantage in their industry. At the same time, the study showed that many CEOs feel a sense of "frustrated ambition" and see businesses confronted with a "pilot-paralysis". Essentially, they are stuck in individual, marginal initiatives with limited impact. They aspire to achieve bigger scale and move faster, but they struggle with traditional expectations, market systems and incentives. This is problematic, as without effective and scalable action by businesses, today's grand challenges as addressed in the post-2015 United Nations development and climate change agendas are unlikely to be tackled. With this publication, "Sustainable Innovation. Game-changing solutions for the world's grand challenges", the Dutch Sustainable Growth Coalition underlines that sustainable innovation can drive both scalable impact and business growth. After our first two publications, "Towards Sustainable Growth Business Models" and "Leadership and Corporate Governance for Sustainable Growth Business Models", addressing business

models and corporate governance respectively, this publication shares insights and lessons of the eight DSGC members about sustainable innovation.

We need each and every player

Countless Dutch companies - large traditional companies, small start-ups and anything in between - are already actively creating social and environmental value by developing innovative products and services. Many large Dutch companies (among which various DSGC members) continue to perform high in the Dow Jones Sustainability Index. Meanwhile, disruptive social enterprises, set up with the objective of resolving a social or environmental problem, are rapidly emerging. Tendencies to strictly distinguish between traditional companies and these new, disruptive companies are noticeable. In the transition to a new, sustainable economic system, our ability to think inclusively and collaborate is put to the test. In order for scalable impact to be realised, companies of many types and sizes are needed.

That is why EY, besides cherishing the Dutch Sustainable Growth Coalition, also empowers smaller entrepreneurs who look to create value through sustainable innovation. EY offers pro bono support and coaching to a wide range of innovative social enterprises through our EY Foundation. Exceptional entrepreneurs are recognised through EY's Entrepreneur of the Year program. EY also initiated the Startup Bootcamp HighTechXL, in which, together with more than 10 companies and 150 mentors, intensive support is provided to 10 rigorously selected start-ups. In both the Entrepreneur of the Year program and the Startup Bootcamp HighTechXL, many of the finalists and winners are in the business of tackling social or environmental problems.

From vision to action

A successful take-up of truly transformational and sustainable innovations is key to realising an ambitious UN development and climate change agenda. The DSGC members are each among the sustainable frontrunners in their respective industries, but realise that much more work is required. Although Dutch innovation policies, as highlighted in chapter 3,

enable and support companies to a great extent, many of today's grand challenges require a "systemic fix" at a global level. This is why the Dutch Sustainable Growth Coalition, as a coalition of companies with operations in every single continent, is actively engaging with policymakers. By shaping, sharing and stimulating the debate about the role of the private sector, we aim to contribute to an ambitious post-2015 United Nations sustainable development and climate change agenda. This is the basis of the Coalition's Manifesto, which is set out in chapter 2.

As you will see in chapters 4 and 5, this publication is filled with "next practices": scalable, impactful product and value chain innovations. It is crucial - as the World Business Council for Sustainable Development advocates - to move from vision to action. To this end, chapter 6 offers some practical recommendations for business leaders. The Dutch Sustainable Growth Coalition genuinely hopes that this publication will not just inspire you. We also hope it will move you.

2. Manifesto

Vision - Mission - Actions

The Dutch Sustainable Growth Coalition was established as a business response to the global challenges we are facing today in economic, social and environmental terms. Businesses can play an important role through innovative solutions in products and services, not in isolation but through collaboration with other businesses and supported by public-private partnerships. In this regard the Netherlands forms a stimulating environment, creating a sustainability valley to accelerate sustainable entrepreneurship. The DSGC was launched at the World Economic Forum in January 2012 and the Manifesto below presents its vision and mission and the key actions that are necessary.

VISION



Global challenges require new orientations...

Our future world needs to be sustainable. With a world population reaching nine billion people by 2050, the global challenges ahead are manifold. These challenges are of vital importance and need to be addressed now. Examples include the scarcity of resources (including raw materials, energy, food and water), social inequality, health and well-being and global climate change.

Companies have a role to play...

The role of business in society is changing rapidly. A growing number of companies are willing to contribute to the necessary transformation of society in a more sustainable direction. This is done by providing innovative products and services with respect for people, planet and profit. Interaction with governmental and non-governmental organisations is increasing and is aimed at creating solutions in partnership.

Traditional growth strategies are no longer sufficient; what is needed is sustainable growth...

Every company has the ambition to grow, but growth should not come at any cost. Many companies now realise that growth measured in purely economic or financial terms has become too limited a concept. To truly solve broader social and environmental issues that affect both current and future

generations and businesses, a new orientation is needed. This calls for sustainable growth being integrated into the overall strategy and operations throughout the value chain, linking economic profitability with social and environmental progress.

Dutch companies are among the leaders in this field...

Several Dutch multinational companies are already operating along these lines, as is reflected in their positions as leaders in the field of sustainability. It is their firm conviction that a sustainable growth business model will strengthen their competitive edge while having a positive impact on the quality of life and environmental and social progress. Sustainable development has become an important driver of business growth and innovation and acts as a stimulus for a new approach to doing business.

The Dutch Sustainable Growth Coalition (DSGC):

Several of these companies have joined forces in the Dutch Sustainable Growth Coalition, an initiative aimed to give further impetus to business growth that links financial and economic results with environmental and social returns. They strongly believe that the sustainable growth business model is the business model of the future.

MISSION ▶

ACTIONS ▶

The Dutch Sustainable Growth Coalition (DSGC) has the following objectives:

The DSGC aims to pro-actively drive sustainable growth business models along three lines:

Shape

DSGC member companies aim to connect economic profitability with environmental and social progress on the basis of integrated sustainable growth business models.

Share

DSGC member companies aim for joint advocacy of sustainable growth business models both internationally and nationally.

Stimulate

DSGC member companies aim to stimulate and influence the policy debate on enabling sustainable growth - with a view to finding solutions to the environmental and social challenges we are facing.

The DSGC member companies have committed to take the following actions:

Shape

- ▶ Within their individual organisations, DSGC members continue to optimise sustainable business strategies towards a sustainable growth business model and to meet their specific targets, which are transparent and measurable. For this purpose the members commit themselves to peer learning through sharing good practices.
- ▶ DSGC members will play a catalyst role in their respective sectors in order to ensure long-term integration of sustainability and inspire the transition towards sustainable growth and creating shared value through their business model.

Share

- ▶ Identify national and international platforms to advocate best practices among Dutch and international businesses, government, consumers, investors and civil society including NGOs and universities.

Stimulate

- ▶ The DSGC aspires to be a coalition of thought leaders and will give its views on "what is moving the boundaries" in relation to inclusive sustainable growth.
- ▶ The DSGC will develop policy recommendations to influence government and EU policies so as to create the right framework conditions for sustainable growth.

Please view the following (Dutch) web page for news items about the activities of the Dutch Sustainable Growth

Coalition:

www.vno-ncw.nl/DSGC

The DSGC consists of the following companies:



The DSGC has the full support of VNO-NCW (Confederation of Netherlands Industry and Employers) and is facilitated by EY.



3. Sustainable innovation

The members of the Dutch Sustainable Growth Coalition envision the Netherlands as a “sustainable innovation valley”. A hotspot for the circular economy, a hub for making global value chains more sustainable and socially inclusive, and a breeding ground for science, government, the private sector and NGOs to jointly create solutions for the world’s biggest social and environmental challenges. This chapter provides further context about the conditions in which such solutions can emerge and flourish.

“Today, companies - both small and large - have an unprecedented responsibility and opportunity to create economic, social and environmental impact through sustainable innovation. The question is not whether you will embark on this journey, but when.”

Marcel van Loo
Managing Partner EY, the Netherlands



3.1. Definition and scope

Definition

The concept of innovation is rather broad. The term comes from the Latin *innovare*, which essentially means “to renew” or “to change”. The DSGC defines sustainable innovation as innovation that creates social, environmental and economic value. As can be seen in Box 1, this definition has some similarities with the concept of “Shared Value Creation” as coined by Michael Porter and Mark Kramer.

Scope

Two types

Extensive research has been carried out on sustainable innovation from the angle of business models. The first publication of the Dutch Sustainable Growth Coalition, “Towards Sustainable Growth Business Models”, was framed within this context. In this publication, however, the DSGC zooms in on two types of sustainable innovations.

Box 1: Definitions

- ▶ *Shared value creation*. A management strategy focused on companies creating measurable business value by identifying and addressing social and environmental problems that intersect with their business. Rather than focus on mitigating harm in the company’s existing operations or on redistribution of profit through philanthropy, shared value strategies engage the scale and innovation of companies to advance social and/or environmental progress. Shared value can be created in three ways: by reconceiving products and markets, redefining value chain productivity or by enabling local cluster development (Porter and Kramer 2011).
- ▶ *Sustainable entrepreneurship*. Innovative, market-oriented form of creating shared value by means of breakthrough environmentally or socially beneficial market or institutional innovations. Sustainable entrepreneurship can also be demonstrated by “sustainable intrapreneurs” (actors inside a company driving sustainable growth) (Schaltegger and Wagner 2010).
- ▶ *Sustainable development*. Development that meets the needs of the present without compromising the ability of future generations to meet their needs (Brundtland 1987).

First, innovations that reconceive a product, service or market, and second, innovations that increase value chain productivity. In various cases, the value chain innovations presented simultaneously aim to tackle a system failure or framework condition deficiency (such as a lack of regulation, weak local infrastructure or difficult access to finance for small entrepreneurs). The case studies in chapters 4 and 5 offer a balanced mix of both types.

Large companies

This publication focuses primarily on the role of multinational companies, whose sustainable innovations have the potential of positively disrupting and impacting society due to their competitive advantages, such as scalability, resources and global outreach. However, as will become clear in various cases in chapters 4 and 5, large companies also have opportunities to increase their positive social and environmental impact through their connections with each other and with smaller enterprises. In some situations, smaller firms are much better positioned to carry out radical sustainable innovations. Large companies can, in some cases, experience a disadvantage when trying to accelerate innovation, but can be better positioned to address global markets and shape global megatrends.

Categorisation

It is important to clearly identify the private benefits (for example, direct cost savings, increased market share) and social or environmental benefits of an innovation (for example, improved biodiversity, the creation of jobs or other forms of societal progress). A useful typology by Schaltegger and Wagner (2010) is summarised in Table 1. All DSGC cases in chapters 4 and 5 fall in either category 2 or 3.

To move from a category 2 to a category 3 innovation, some degree of “institutional entrepreneurship” (or what DSGC considers to be “system innovation”) may be necessary. To this end, various DSGC companies engage in global advocacy initiatives to ensure that public policies and societal awareness enable their sustainable innovations to scale and flourish.

For example, by lobbying for the removal of regulatory barriers, by jointly developing an industry standard, by setting up awareness campaigns or by forging effective multi-stakeholder partnerships. The case on Unilever’s role in creating the Tropical Forest Alliance 2020 is an example of the latter. The same applies to the Philips case study in the previous DSGC publication “Leadership and Corporate Governance” , on a pre-competitive initiative to source conflict-free tin.

It is key to understand that many positive and negative social and environmental effects - referred to as “externalities” - are not reflected in the price or value of products. When companies review scenarios or take complex decisions, the potential emergence of such externalities (for example, government taxes on natural resources) is often not anticipated. Examples of negative externalities include water or air pollution, or the lack of worker safety. Examples of positive externalities enjoyed by end users of DSGC product innovations - such as reduced CO₂ emissions and health benefits - are illustrated in chapters 4 and 5 of this publication. To further study the monetisation and valuation of externalities, various DSGC members - as well as DSGC’s facilitator, EY - are working with a selection of non-profit organisations and social enterprises (in the Netherlands, one such example is True Price).

Having established the definition and scope of sustainable innovations covered by this publication, the next section looks to clarify how large companies can enable it in practice.

Category	Compensatory innovations		Most desirable form of sustainable innovations
	1	2	3
Schaltegger and Wagner (2010)	Providing enough private benefits to compensate for negative social and/or environmental effects.	Providing social and/or environmental benefits to such an extent that it justifies accepting a lower level of private benefit.	Positive private and social and/or environmental benefits coincide; the two are mutually reinforcing.
DSGC	Not within the scope of this publication.	Within the scope of this publication. The DSGC believes that category 2 innovations only qualify as “sustainable” if it is of a temporary nature (as a transition phase to category 3).	

Table 1: Categorisation of sustainable innovations

3.2. Enabling sustainable innovation

How can companies successfully enable employees to design, develop and launch sustainable innovations? What type of “innovation infrastructure” facilitates this process? This section takes a closer look.

Unleashing organisation-wide intrapreneurial behaviour

The DSGC believes that social innovation is essential; without an innovation infrastructure that effectively turns technological inventions into viable business solutions, innovations are much less likely to materialise successfully. The findings of the Erasmus Competition and Innovation Monitor covering the years 2006 to 2013 (Volberda et al., 2013) indicate that attributes of social innovation (such as smart and flexible working, the ability to tap into the knowledge and creativity of employees, new management forms and successfully collaborating with third parties) are of great importance. These factors explain 75% of the variation in innovation performance between Dutch firms. Technological innovation explains just 25% of the variation in innovation performance of Dutch firms. In the Netherlands, various studies conclude that there is a need for knowledge to “circulate” more. This refers to the problem that a lot of knowledge (produced in companies and knowledge institutes) is left untapped, due to a weak connection with those outside the R&D function, the knowledge community and the business environment (see, for example, the report entitled “Towards a Learning Economy” by the Scientific Council for Government Policy, 2013).

The first paragraphs of the DSGC case studies in chapters 4 and 5 also demonstrate the importance of interdisciplinary collaboration: the teams are always a mix of professionals with different backgrounds. It is key to have a mechanism in place to unleash employee creativity and enable intrapreneurial behaviour. What are known as “tiger teams” or “champions teams” can be created to stimulate this. Many companies have organisation-wide incubator programmes to prevent a silo-working mentality and tap into the brainpower and creativity of employees. The company overviews in Appendix 1 provide insight into instruments in place within the DSGC companies to foster a culture of creative, open, flexible and collaboration-oriented innovation.

It is useful to understand the difference in innovation strategies. As can be seen in the overviews, some DSGC companies strongly focus on developing new products and services (in some cases through acquisitions or joint ventures) - for example, DSM, Unilever, AkzoNobel and Philips. Others are primarily concentrating their efforts on innovations that improve their existing core product(s) or service(s) (for example, FrieslandCampina, HEINEKEN, KLM and Shell).

Innovating for shared value

The Harvard Shared Value Initiative identified a typology of five mutually reinforcing elements, building on Porter and Kramer’s “Creating Shared Value” article (the concept of which is also explained in Box 1). It consists of “embedding a social purpose, rigorously defining the social need, measuring the social and business value, co-creating with external stakeholders and creating the optimal innovation structure” (Pfizer et al., 2013).

The latter element of this typology - creating the optimal innovation structure - is highlighted in the next paragraph of this section. The first four of these elements have been elaborated on in the first DSGC publication, which is summarised in table 2.

	Sustainability Phases		
Dimensions	1. Compliance	2. Risks and Opportunities	3. Strategic sustainable value creation
1. Strategy	Short-term profit maximisation	Long-term profit maximisation taking into account stakeholder needs and concerns	Generating long-term company value by creating economic, social and environmental value for stakeholders
2. Leadership	Reactive	Proactive	Inspirational and visionary
3. Driver(s)	Legal compliance	Cost savings and revenue opportunities	New market creation and transformational innovation
4. Stakeholder relations	One-way consultation	Two-way dialogue and partnerships	Ongoing interactions
5. Business alliances	Certification or philanthropic	Cooperation/partnership	Co-creation through multi-stakeholder dialogue
6. Embedding	Staff-owned	Embedded in line-management	Cross-functional interaction of line management
7. Reporting	Minimal / legal compliance reporting	Collecting sustainability information for management purposes and external reporting	High-quality reporting demonstrating the sustainable growth business model and the value created by the organisation

Table 2: Summary of DSGC’s first publication “Towards Sustainable Growth Business Models”

Innovation infrastructure

To create an enabling innovation structure, Pfitzer et al. identify four options:

1. First, integration within a legacy business, for example by restructuring or reorienting a company's existing R&D organisation. Core business functions are responsible for this process, managing it as part of the company's regular processes. For example, the product innovations of Philips, AkzoNobel and DSM in chapter 4 and 5 were able to flourish thanks to close involvement by the companies' R&D organisations and networks - each of which have a strong orientation towards sustainability.
2. Second, creating a semi-autonomous unit, for example, when a new venture takes longer to meet the company's usual profitability levels. In this scenario, no separate legal entity is created. The innovation is developed in-house, but is shielded from the usual profit targets of the rest of the business. One such example is the Shell case, on carbon capture and storage, as explained in chapter 4.
3. A third scenario is to obtain philanthropic or government support. Government funding can bridge the necessary transition phase that is, in some cases, necessary to explore the path to profitability. This scenario enables intrapreneurs (in-company champions) to take it forward without exposing their careers or other business prospects at risk. Once a viable business model is found and approved internally, it can be incorporated progressively into the rest of the organisation and/or scaled up. An example of this is offered in chapter 5, which illustrates FrieslandCampina's collaboration with the Dutch Ministry of Foreign Affairs, in a dairy development programme in Indonesia.

4. A fourth way is to finance external entrepreneurs. In some cases, an independent entrepreneur can provide the insights and cost-effective solution to a social problem. The company can learn from the entrepreneur or might even look to acquire the entrepreneur's solutions. This might also involve alliances with social enterprises. Jugaad - a Hindi word - refers to the art of overcoming challenges by improvising effective solutions, scarce resources and simple inputs (Radjou et al., 2012). It is an economical, flexible and democratic approach to innovation, focused on doing more with less. Box 2 provides two inspiring jugaad examples.

Open innovation

The third and fourth option (securing philanthropic or government support, and financing external entrepreneurs) are examples of a broader range of options to engage in open innovation. For example, open innovation can also involve collaboration with:

- ▶ customers (as illustrated in the product innovation cases of DSM and AkzoNobel in chapter 4);
- ▶ suppliers (as shown by the KLM cases on light-weight cargo nets and sustainable catering and the HEINEKEN cases on low-carbon refrigeration and local sourcing in Haiti in chapters 4 and 5);
- ▶ competitors and stakeholders from other industries (as exemplified by the Unilever cases on deforestation and sanitation issues in chapters 4 and 5 respectively)

- ▶ a joint venture partner - for example, the first DSGC publication "Towards Sustainable Growth Business Models" highlights how DSM set up a joint venture (POET) to develop advanced biofuels, while the second publication "Leadership and Corporate Governance" illustrates how Shell and KLM set up joint ventures to develop bioethanol (Raízen) and biofuels for the aviation industry (SkyNRG) respectively.

This section has highlighted the importance of social innovation. A number of options in which companies can enable sustainable and open innovation, together with employees and external stakeholders, were presented. The Dutch government plays an important role in stimulating technological innovation. Therefore, the next section of this chapter highlights a selection of key innovation policies.

Box 2: Co-creation with jugaad innovators:

To tap into the brainpower and creativity of external inventors, the DSGC companies actively look outside the organisation to spot innovative products or services developed by smaller enterprises. The latter often lack the assets, customer insights and resources to realise a breakthrough into a mass market. This is where larger companies can add value. Two examples are illustrated below.

Unilever has partnered with Wonderbag social entrepreneur Sarah Collins. Wonderbag is a heat-retention cooker made from two poly-cotton bags filled with expanded polystyrene balls which trap the heat. Food just needs to be brought to the boil and then left inside the Wonderbag to continue cooking. This reduces fuel use by up to 90%. With every 200 grammes of curry powder brand Rajah, customers received a Wonderbag for free. During a 3-month period, 100,000 Wonderbags were given away, creating hundreds of jobs. Sales of Rajah 200-gramme packs tripled. To develop partnerships similar to the one with Wonderbag, Unilever is permanently running an annual Sustainable Living Young Entrepreneurs Award programme in partnership with Ashoka.

FrieslandCampina has teamed up with former sous chef Adriaan Cornelis Kweldam. He came up with the brilliant idea to combine dairy curd with algae to create a new, fibrous structure that tastes surprisingly similar to meat. He took his idea to FrieslandCampina, after which a new product - Valess - was introduced in 2005. The product, a sustainable and healthier alternative to meat, is now sold in four European countries.

3.3. Dutch sustainable innovation policy

The Dutch government has a key role in enabling sustainable innovation. The first part of this section highlights the main tax instruments aimed at stimulating innovation of companies. The DSGC companies each make use of these instruments. Next, the top-sector policy is explained. Third and last, a selection of government policies that stimulate responsible and sustainable innovation is presented.

Tax instruments

In the Netherlands, the government invests in technological innovation and R&D, mainly by using tax instruments and incentives. This is not tied to a specific technology, size of company or type of sector, nor is it tied to sustainability objectives. The three major instruments are listed in Box 3. In addition, the Dutch government has several capital-market-based instruments for small and medium-sized enterprises, which increase access to seed capital, early-stage grants and credits.

Box 3: Tax instruments

- ▶ **R&D tax credit (WBSO).** This tax facility was introduced in 1994 and modified over the years, following evaluations. It reduces taxes on labour costs of R&D personnel. A contribution is paid towards employees' wage costs in the form of a reduction in payroll tax and social security contributions and an increase in the tax deductions available to self-employed persons.
- ▶ **R&D allowance (RDA).** The RDA was introduced in 2012 to promote firms' investments in innovation. It allows firms to deduct investments in R&D equipment and exploitation costs. In this sense, it complements the WBSO, by offering tax credits for R&D investments other than those related to human resources.
- ▶ **Innovation box:** The Innovation Box was introduced in 2010. Profits achieved through the commercialisation of self-developed assets are taxed at 5% instead of 25%. These are: (i) self-developed intangible assets protected by a patent granted to the taxpayer; and (ii) self-developed intangible assets that result from a qualifying R&D project for which an "R&D statement" has been obtained from the Dutch authorities.

The total budget for the tax credit/allowance (WBSO/RDA) was EUR 1,073 million in 2013 and EUR 1,066 million in 2014. The structural use of the Innovation Box in budgetary terms is estimated at EUR 625 million.

Source: OECD (2014)

Top-sector policy

On top of these instruments, the Dutch government directly invests in nine "top sectors", i.e. sectors that are knowledge intensive, export oriented and innovative. The top sectors can potentially offer ground-breaking solutions to social and environmental challenges. The top-sector policy is an integrated programme for each sector, bringing together the necessary research and innovation, human capital, a regulatory framework and international agenda. Each sector, led by a team of leading practitioners from all sectors, has signed an "innovation contract". This contract states the priorities for research and innovation and the responsibilities of all parties involved. In the light of the 2014-2020 "Horizon 2020" programme of the European Union, the report entitled "Global Challenges, Dutch Solutions" demonstrates how each of the top sectors contribute to today's "grand challenges".

The private sector is expected to match public funding with substantial investments of its own, which are expected to be close to EUR 1 billion a year in 2014-15, distributed across all top sectors. As can be seen in Table 3, more than half of the private sector contribution is expected to be made in high-tech systems and materials, followed by energy and agri & food.

High-tech systems and materials	€545 million
Energy	€150 million
Agri and food	€84.6 million
Chemicals	€63.8 million
Water	€54.2 million
Life sciences and health	€31.8 million
Horticulture and propagation materials	€25.9 million
Logistics	€7.9 million
Creative industry	€5.7 million

Table 3: Expected private-sector investments in the top sectors
Source: OECD (2014)

Compared to other countries, Dutch government support for business R&D is average. In 2011, the Dutch government invested less than 0.2% of GDP in business R&D and tax incentives, with the latter accounting for the greater part of it. Among the OECD country governments most heavily investing in business R&D and R&D tax incentives are Russia, Slovenia, Korea, the United States and France (between 0.32% and 0.42% of GDP).

Connectivity between Dutch innovation policies and the sustainability agenda

Each top sector's "innovation contract" describes the key themes in roadmaps. An integrated part thereof are the social challenges the sectors face, such as natural resource scarcity, water, food security and climate change. Special attention is

devoted to cross-sector themes that require collaboration, such as the bio-based economy. The DSGC members strongly encourage public top-sector policy to preserve - and, where possible, extend - this social focus. This is in line with the 2013 policy recommendations of the Advisory Council for Science and Technology Policy (AWT), which advises the Cabinet on how to improve the connectivity between innovation policy and society's "grand challenges".

In 2013, the AWT was asked to draw up recommendations as to how the Dutch innovation strategy could create more social and environmental value. The report highlights how the top-sector policy and the Holland branding strategy can be aligned with today's social challenges, for example by fostering more cross-sector projects. This alignment is one of the three pillars of the European Union's Horizon 2020 agenda (the other two being "excellent science" and "industrial leadership"). The Dutch government has allocated EUR 36 million to co-fund participation in European research projects focused explicitly on grand challenges between 2014 and 2017.

The Responsible Innovation Programme (in Dutch: programma Maatschappelijk Verantwoord Innoveren) finances and fosters research to understand potential ethical and social dilemmas at a very early stage. In essence, the programme serves to involve stakeholders right from the start, rather than when evaluating or when issues emerge (which is standard practice). Board members from AkzoNobel, FrieslandCampina, Philips, DSM and Shell, among other companies, are part of the programme's Board of Recommendations.

Two important pillars for participation are social relevance and relevance to developing countries. In the period from 2008 to 2014, some EUR 20 million was invested in responsible innovation research projects, including projects in developing countries regarding biofuels, agro tourism and irrigation. The programme is run by the Netherlands Organisation for Scientific Research, which, in collaboration with the top-sector policy programme, will invest EUR 275 million annually (more than half of its annual budget) in innovation-related research as of 2015.

The DSGC welcomes the abovementioned Responsible Innovation Programme, and the alignment of the Dutch top-sector policy with Horizon 2020. The Coalition advocates similar connectivity with the global policy agenda, convened within the United Nations. The fourth and last part of this chapter therefore offers some key insights on the global development and climate change agenda, as well as the role of the Dutch government in forging partnerships.

3.4 The global sustainable development agenda

The DSGC believes that companies, when adopting a sustainable growth business model, can make a significant contribution to global sustainable development. However, this potential is not sufficiently recognised by business leaders, NGO leaders, policymakers and scientists. By offering concrete examples of scalable business innovations that tackle social, economic and environmental challenges in chapters 4 and 5, the DSGC aims to facilitate peer learning and raise awareness. Furthermore, the DSGC advocates that climate change and global development are intrinsically linked. Therefore, global policies on both agendas should be developed in an integrated way rather than in isolation.

The fourth and last section of this chapter first addresses the post-2015 global development policy framework currently being developed by the United Nations. Next, the role of the UN Global Compact and World Business Council for Sustainable Development in catalysing business support is explained. Third, the 'Dutch diamond approach' to partnerships as well as two policy instruments are presented. The last part of this section underlines the need for an effective global climate change agreement.

The UN development goals

In September 2000, world leaders came together at United Nations Headquarters in New York to adopt the United Nations Millennium Declaration, which outlined and committed nations to a series of time-bound targets that have become known as the Millennium Development Goals (an overview of which is provided in Appendix 2). The agreement built on a decade of UN summits and conferences. Over the past decade, significant progress has been made in various areas, including poverty reduction, access to improved sources of drinking water, child

death rates and deaths from malaria and tuberculosis.

However, the framework designed to guide the international development efforts is due to expire in 2015. Therefore, the global community is currently discussing a post-2015 framework, including a new set of global development goals (the "Sustainable Development Goals", or SDGs). This process is led by Member States with extensive support from the United Nations system, which provides technical advice and leads efforts to consult different stakeholder groups. With regard to the development of the SDGs, and pursuant to a decision of the General Assembly on 22 January 2013, a 30-member Open Working Group (OWG) was established and mandated to prepare a proposal on future SDGs, which were submitted to the General Assembly in September 2014. The SDGs - goals and targets - are expected to be adopted at a Summit in September 2015.

The Member States have decided to use an innovative, constituency-based system of representation, which means that most of the seats in the OWG are shared by several countries. Thus the total number of Member States participating in the OWG adds up to approximately 70. For example, the Netherlands shares its seat with Australia and the UK. Unilever's CEO Paul Polman was one of the two business representatives participating in the High Level Panel on the post-2015 development agenda. This 27-member Panel developed recommendations to the UN Secretary General.

UN Global Compact and World Business Council for Sustainable Development

To involve and team up companies from around the world, business networks such as the UN Global Compact (UNGC)

and the World Business Council for Sustainable Development (WBCSD) have developed action programmes to speed up the private sector's commitment on both climate change and sustainable development. The DSGC companies, most of them being signatories to both the UNGC and the WBCSD, fully support their agendas and activities. More detailed information on the UNGC and WBCSD frameworks for action and prioritisation is offered in Appendix 3 and Appendix 4. The UN Global Compact, through its "Caring for Climate" initiative - co-convened with UN Environment Programme and the secretariat of UNFCCC - provides a leadership framework for companies to advance practical climate change solutions and help shape public policy including through its annual Business Forums at COP meetings and other key UN processes.

Partnerships

Various cases in chapter 4 and 5 illustrate the value of working with governments, universities and NGOs. The previous DSGC publications highlighted the importance of partnership and multi-stakeholder collaboration as well. See, for example, page 20 of "Towards Sustainable Growth Business Models". Useful insights on this subject are also offered in the report entitled "A New Global Partnership for Business: Building a Post-2015 Development Framework to Achieve Sustainable Prosperity in Africa", published by Business Action for Africa, the Harvard CSR Initiative and the Partnering Initiative.

The Dutch government plays an important role in convening and stimulating such partnerships, the approach being coined the "Dutch Diamond". In the next paragraphs, this framework is explained. Next, two initiatives are explained: the Sustainable Trade Initiative (a public-private partnerships convener) and the Dutch Good Growth Fund (an investment vehicle).

The Dutch Diamond approach

The Dutch Diamond approach establishes Public-Private Partnerships (PPPs). PPPs aim to find sustainable solutions by creating synergy and using the different competences of the various sectors involved. The partnerships are alliances of knowledge, know-how and funds. Risks and responsibilities are borne together and shared goals become drivers for innovative solutions and cooperation. Within the Dutch Diamond approach, business brings in corporate efficiency and market orientation; civil-society organisations offer local knowledge and networks; knowledge institutions contribute their expertise; and governments act as brokers and co-financers. Figure 1 offers a visualisation of the approach. The Dutch Ministry of Foreign Affairs has designated funds for PPPs engaged in such themes as water, food security, health and energy. These funds are managed and administered by a separate government agency. In 2013, the Ministry invested EUR 130 million in PPPs. This has leveraged over EUR 130 million in investment from the other partners within the partnership. As a result, 40 innovative projects, targeting bottlenecks in development issues, were set up. These bottlenecks are impossible to tackle by any of the sectors alone. Moreover, the scale of both social and market developments reached through the Dutch Diamond approach is hard to achieve otherwise. Some PPPs involve multiple DSGC companies. A signatory example is illustrated in Box 4, which describes the Amsterdam Initiative against Malnutrition (AIM).



Figure 1: the Dutch Diamond Approach

The Dutch Sustainable Trade Initiative

The Dutch Sustainable Trade Initiative, inspired by the Ethical Trading Initiative in the UK, was launched in 2007/2008 to promote inclusive, responsible and sustainable supply chains. It acts as a broker, encouraging cooperation between government, labour unions, business and civil society. Moreover, it actively encourages international suppliers to adhere to codes of conduct and to develop criteria for sustainable supply chains. Among its corporate partners are DSGC members FrieslandCampina, Unilever, Philips and AkzoNobel. The Dutch Ministry of Foreign Affairs has granted EUR 125 million for the period from 2011 to 2015 to match private investments in sustainable market transformation in 18 commodity sectors, ranging from cocoa, palm oil, soy and timber, to electronics, biofuels and vegetables. The Swiss government has entered into a partnership with the Dutch Sustainable Trade Initiative, financing another EUR 24.5 million.

Box 4: Amsterdam Initiative against Malnutrition (AIM)

For example, through the Amsterdam Initiative against Malnutrition (AIM), business models are developed to improve food and nutrition security in Eastern Africa and Southern Asia. The AIM leads to product innovation, increased value chain productivity and increased volumes of local sourcing. Local partners take the lead in all projects. Unilever, AkzoNobel and DSM have been involved. The initiative, aiming to improve nutrition of 100 million low end consumers by 2015, required an investment of EUR 11 million. This is matched by the Ministry of Foreign Affairs. The initiative is managed by the Global Alliance for Improved Nutrition. Nutrition innovations developed by DSM and AkzoNobel are illustrated in chapter 5.

The Dutch Good Growth Fund

The Dutch Good Growth Fund is a new instrument operationalising the combined agenda of aid and trade through investments that foster the development of small and medium-sized entrepreneurs (SMEs) in 66 lower- and middle-income countries. The EUR 750 million Fund offers financing to Dutch and local companies active in Africa, Latin America and Asia. It pays special attention to the development of entrepreneurship among the youth and women, as well as businesses operating in fragile states. The Dutch Good Growth Fund takes a 3-track approach. The first track supports Dutch SMEs that want to invest in lower- and middle-income countries. The second track finances SMEs in lower- and middle-income countries directly. The third track offers export financing to Dutch SMEs with a strong development impact. Key performance indicators are based on job creation, knowledge transfer, improved financial sustainability, increased volumes of trade and investment, and stronger competitiveness of Dutch companies.

Climate change

The world is looking to the Conference of the Parties (COP 21) on climate change to realise a breakthrough in climate-related policy issues from 2015 onwards. In Paris, the world's leaders aim to broker a new agreement.

The Netherlands is a member of the Green Growth Group, a coalition of like-minded energy, climate and environmental Ministers from 13 EU Member States. In its manifesto entitled "Going for Green Growth: the case of ambitious and immediate EU low carbon action", the Ministers state that ambitious decarbonisation will support millions of low-carbon sector jobs and spur industrial innovation. In addition, it states that decarbonisation and fostering technological innovation can

unlock other side effects, such as prevention of air pollution and loss of biodiversity while improving green business and energy efficiency. Some examples of programmes run by the Dutch government aimed at cutting greenhouse gas emissions are also included in chapter 5 of DSGC's first publication, "Towards Sustainable Growth Business Models".

The DSGC encourages the Dutch Cabinet to heavily invest financial, human and diplomatic resources to realise a breakthrough at the climate negotiations in 2015, including bringing ambitious Dutch commitments to the table early to set the level of ambition and expectation for other countries similarly high. Furthermore, the DSGC believes it is key to involve and inform the public about the importance of reaching an effective global climate change agreement. A joint statement of DSGC about climate change can be read in chapter 4.

While the global UN policy dialogues on climate change and the post-2015 development goals evolve, the DSGC calls upon all leaders in business and government to take action. To inspire dialogue and action, the next two chapters present 16 case studies, each of which offer lessons learned by the individual DSGC members.

"The societal challenges all over the world are key drivers for innovation. It's clear that addressing these challenges will be vital for maintaining a competitive edge. In my opinion all sides of the golden triangle, business, government and knowledge, will have to work together and join forces. Shifting the topsector approach into the next gear is therefore essential."

Hans de Boer

President, Confederation of Netherlands Industry and Employers (VNO-NCW)



Chapter 3 in a nutshell

The first section of this chapter defined the concept of sustainable innovation. The scope of innovations discussed in this publication was also clarified; the 16 case studies in the next chapter are a combination of value chain innovations (in some cases simultaneously addressing systemic issues) and innovations that reconceive a product, service or market. The second section of this chapter underlined the importance of social innovation. It offered a framework companies can use when choosing an innovation infrastructure to enable sustainable innovation. Not only employees, but a wider variety of stakeholders can be engaged in open innovation. The third section of this chapter highlighted the role of the Dutch government in stimulating technological innovation. Tax instruments, the top-sector policy and alignment of the latter with objectives of sustainable and responsible innovation were explained.

The last section of this chapter stressed the need for global policies on climate change on one hand, and global development on the other, to be developed in a mutually reinforcing way. After a short evaluation of the "Dutch diamond approach" to brokering partnerships, the chapter ended with a short introduction to the next chapter, on innovations that help tackle climate change.

4. The Climate Change Agenda

In this chapter, eight case studies are offered to illustrate how the DSGC companies are already working to reduce CO₂ emissions through their innovative products and services. In addition, the Dutch Sustainable Growth Coalition presents its Climate Change Statement as communicated in the run-up to the United Nations Climate Summit on 23 September 2014.

Innovations

Each case study starts off with background information on the innovation and how it came about. Next, the business case is set forth. Third, the impact of the innovation and the extent to which the innovation is (or can be) measured are highlighted. Last, risks and challenges are shared.

Product and service innovations

The cases of DSM, Philips, Shell and AkzoNobel illustrate how companies can develop (or reconceive) a product or service with the purpose of reducing CO₂ emissions as well as saving costs. In each of these cases, CO₂ emissions are not reduced within the scope of the company's own operations; the environmental benefits and cost savings are enjoyed by the customers using the product or service.



Anti-reflective coating for solar cover glass



Solar LED light



Carbon capture and storage



Foul release coating for ships

Value chain innovations

The cases of HEINEKEN, FrieslandCampina, KLM and Unilever illustrate how companies can use their influential position in the value chain. In the first three of these cases, the companies act both as launching customers and as co-creators of new or newly sourced products. The Unilever case illustrates how companies can use their position as large buyers to leverage a pre-competitive partnership towards system-level change. The innovations of KLM and FrieslandCampina directly lead to cost savings and environmental benefits for the company's own operations.



Revolutionary bottle cooler



Pyrolysis



Lightweight cargo nets



Tropical Forest Alliance 2020

As a result of these eight innovations, carbon emissions are significantly reduced in developing markets (as the cases of Unilever and Philips demonstrate), in the Netherlands (as the case of FrieslandCampina shows) or globally (as the KLM, Shell, DSM, AkzoNobel and HEINEKEN cases illustrate).

Phase

The FrieslandCampina, Unilever, HEINEKEN, Shell and Philips cases are in their early stages of development, but do have the potential for future scaling. The innovations demonstrated by KLM, DSM and AkzoNobel are currently in the scaling phase.

Statement

In the run-up to the UN Secretary-General's Climate Summit in September 2014, the DSGC released the following statement:

Combatting Climate Change through business action Urgent action via global approach is necessary

The Dutch Sustainable Growth Coalition (DSGC) acknowledges and supports the wake-up call from scientists, policy makers and think tanks about the urgent need for a reduction in greenhouse gas emissions to avoid irreversible climate change and the forecast disastrous effects on society, the economy and nature. Among other, the DSGC acknowledges the IPCC Fifth Assessment Report Climate Change 2013 and the Action 2020 Executive Brief on Climate Change from the WBCSD, Stockholm Resilience Centre and Stockholm University.

Climate change is, by definition, a global issue. Since the Kyoto Protocol was established in 1997, emissions of greenhouse gases have increased by 50% and have spread over the entire world. Effective action is required across the globe, since no country or continent can do it alone.

DSGC companies see it as their responsibility to act individually, to engage and stimulate other business leaders and companies to act accordingly. The private sector will play a decisive role in tackling climate change through innovations and sustainable business. A true transformation will need strong leadership from governments all over the world.

The DSGC companies pledge:

- to use their influence in business and policy circles to accelerate the transition to a more sustainable economy;
- to support government action to set the "context and rules" via a global agreement on climate change;
- to take action to voluntarily reduce their environmental footprint and reduce CO₂ emissions as much as they reasonably can; and
- to take responsibility for helping develop innovations and new technology to reduce greenhouse gas emissions significantly.

The DSGC companies have a strong desire to be a frontrunner in this respect.

The DSGC companies look to governments to deliver:

- a global, effective carbon market as a primary driver for sustainable innovation, efficiency improvement and greenhouse gas reduction all over the world;
- a carbon market that results into a global, effective and meaningful carbon price.; and
- a global climate change agreement which facilitates and support global market mechanisms as much as possible.

The DSCG companies look forward to working in partnership with governments and other interested stakeholders to bring about these necessary conditions for success.



DSM - Anti-reflective coating for solar cover glass



Innovation

DSM Advanced Surfaces provides innovative materials for the development of more efficient solar PV modules resulting in lower energy costs. KhepriCoat®, its flagship product, enables glass to transmit more light instead of reflecting it. The patented structure of the coating enables the material to give maximum efficiency increase while enhancing durability. Sustainable innovation is a key priority of DSM's business, with 95% of all products in the innovation pipeline qualifying as "ECO+". Aware of this strategic priority, two professionals from DSM Innovation Centre, a business developer and an R&D professional with a more technical background, investigated the coating's alternative applications in 2009. DSM had already been applying similar coating technology to picture framing. Building on this experience, it took the team two years to apply this technology to solar PV. The Innovation Centre reports directly to the CEO and is held accountable for finding and building new market platforms.

Business case

KhepriCoat®, a business-to-business product, is now widely applied in the solar energy industry and is gradually emerging in other industries like the horticulture and greenhouse industry. Globally, currently, about 70% of all solar panels are covered with an anti-reflective coating. To date, more than 60 million m² of solar panel glass have been covered with KhepriCoat®. In April 2013, DSM opened a new KhepriCoat® manufacturing plant at the Chemelot site in Sittard-Geleen, the Netherlands. DSM aspires to expand its product range to other

innovative products and technologies that further increase solar modules' efficiency. DSM makes use of Dutch legislation that provides tax facilities for companies, internal R&D departments, external knowledge centres and self-employed persons who perform R&D work.



Impact

By reducing the amount of sunlight that is reflected back off the panels, KhepriCoat® ensures that more of the sun's energy is captured and that, therefore, more energy is produced by each solar panel. The result is an increase in solar panels' energy output of up to 4%. The product can be applied to any glass surface to improve solar light transmission and meets the durability requirements of the solar module of up to 25 years. DSM built its own solar park in India to test the product's energy efficiency and monitor its durability.

"Right from the start, we collaborated with potential clients. The ensuing tests gave us the key insights we needed to build our business. Our KhepriCoat® team is passionate: it makes us proud to contribute to a business solution that can help tackle climate change."

Jan Grimberg

Business Director, DSM Advanced Services



Risks and challenges

First, the fast-developing solar market was new to DSM. The team collaborated with potential clients to test the product and explore technical issues. Prior to this collaboration, DSM and key players in the solar industry had limited knowledge about the exact requirements and needs of solar-module companies. DSM's extremely thin layer of coating material had never been applied on solar glass. A special deposition procedure had to be developed. Throughout the process, DSM worked with knowledge institutes such as the University of Sheffield, Fraunhofer Institute and Energy Research Centre of The Netherlands. A second and ongoing challenge is that standard-setting bodies as well as solar-module producers need to be informed about anti-reflective coating products. This is especially the case when it comes to quality and practical differences between KhepriCoat® and alternative products. For example, materials used for solar panels in the desert should meet different standards than those applying to panels installed in colder and wet climate conditions, such as Norway.



Innovation

In 2014, Philips Lighting launched a product line of solar lights for Africans with daily incomes ranging from USD 2 to USD 10. Philips realised that introducing suitable technological solutions for the African market was not the sole issue. The R&D team noticed that it needed to focus on local field research in order to understand consumer needs and priorities. Using the insights obtained, the team developed a series of product concepts and technology solutions which better met the needs of this customer segment. They worked closely with the Consumer Luminaires product group to translate the concepts into real products. Thanks to a cross-functional team, consisting of professionals with practical, entrepreneurial and research backgrounds, the period between the idea's inception and its market launch was 18 months.

Business case

Philips strives to make the world healthier and more sustainable through innovation. The company's goal is to improve the lives of 3 billion people a year by 2025. In 2013, Philips improved the lives of 1.8 billion people. In Africa, approximately 560 million people live in communities that are not connected to the electricity grid. As such, the market for off-grid lighting is large, which presents a great opportunity for Philips. Philips did not apply for public or other external funding, as this may have slowed down the process. The cross-functional team worked with the Philips Africa market team to support its efforts to develop a business case and a go-to-market strategy.

Impact

Solar lamps reduce dependency on expensive and unsustainable kerosene lamps, which are still commonly used in many African households. Furthermore, the lamps resolve healthy and safety issues, as kerosene lamps regularly lead to respiratory problems, fires and accidents. Socio-economic benefits include the ability of shop keepers, teachers and children to continue (home) work after dark. Philips expects to be able to scale up this impact when a "pay per use" payment option is introduced. This will allow consumers to gain access to solar lights without having to purchase them and to act as users rather than owners. To achieve a wider adoption of the lamps, a strong distribution network with smart payment technology will be essential. In addition, partnerships with local and national governments, as well as NGOs and small enterprises, are being forged, for example, to educate people about the difference between renewable energy and kerosene. In a Philips research lab in Nairobi, the impact of the lights is analysed and monitored on an ongoing basis.



"Within 18 months, we brought multifunctional, high-quality solar lights to the 'base of the pyramid' market. We see this as an inspiring start for introducing a broader off-grid product portfolio."

Dieuwke Boersma
Senior Director Innovation, Philips



Risks and challenges

Understanding the local requirements and needs of consumers was key. For example, in the current setting, consumers must pay about USD 25 upfront to buy the lamp rather than being allowed to pay for it in daily instalments, which would better suit their low income levels. Furthermore, Philips learned that consumers had very specific preferences, for example regarding maintenance and the issue of outdoor versus indoor use of the lamps. Another challenge was to effectively organise Philips' supply chain where transport and distribution were concerned, in particular. In addition, the team is looking into opportunities for recycling schemes and for the use of bio plastics or recycled plastic (rather than regular plastic). The lamp's design is suitable for this, as it is easy to take the lamp apart and to replace or repair individual components or for maintenance purposes.





Innovation

Carbon capture and storage (CCS) has the potential of significantly reducing CO₂ emissions associated with the use of fossil fuels in the power, transport, steel and cement sectors. CO₂ is separated from exhaust gases, transported over land or sea and permanently stored deep underground. Peterhead is the world's first commercial CCS project pursuant to which CO₂ will be captured from a gas-fired power station. CO₂ will be transported 100 kilometres offshore and stored in a 2.5-km deep former gas reservoir. Existing CCS technology is combined for the sole purpose of reducing CO₂ emissions. A decade ago, the initial steps to develop CCS technology were taken under the leadership of the CEO and a corporate CO₂ team. The Executive Committee sets the corporate CCS agenda, the CO₂ team delivers the programme with the businesses, while the R&D Department delivers the technological innovation.

Business case

Shell uses USD 40 per tonne of CO₂ as a proxy for the cost of reducing CO₂ emissions. In the long run, CCS will enable decarbonisation at lower cost than the CO₂ price achieved through the Emissions Trading Scheme. However, Shell has faced first-mover disadvantages, as the public and governments are not yet convinced of the benefits of CCS, while CCS costs are still high. CCS can only be achieved as a competitive and credible mitigation technique in collaboration with other parties, for example by jointly investing in research, and infrastructure. By 2030, Shell and others might be able to

deploy CCS commercially, but costs will have to be almost halved for that to happen. Shell has spent billions of dollars on its CCS work over the last seven years.

Impact

Adding CCS to a gas-fired power plant can reduce carbon emissions by more than 90%. The British Geological Society and the UK Department of Energy and Climate have calculated that, under the North Sea alone, enough space is available to store all of the EU's carbon emissions for the next century. Without CCS, the UK government would have to spend an additional GBP 32 billion annually (1% of GDP) to achieve the same CO₂ reduction.



"We believe carbon capture and storage - CCS - will be a key technology in the future, enabling us to improve our emissions performance and, more importantly, lower the emissions of our customers in the power and transportation sectors."

Ben van Beurden
CEO, Shell



Risks and challenges

Shell considers the safety risks involved in CCS to be relatively low and highly manageable. The key challenge is to gain a public understanding of the need for CCS, as well as trust in its cost-competitiveness and reliability. In its 2014 mitigation report, the IPCC flags some risks and concerns, stating that "barriers to large-scale deployment of CCS technologies include concerns about the operational safety and long-term integrity of CO₂ storage as well as transport risks". However, it also notes that "there is a growing body of literature on how to ensure the integrity of CO₂ wells, on the potential consequences of pressure build-up within a geologic formation caused by CO₂ storage" and on the "potential human health and environmental impacts from CO₂ that migrates out of the primary injection zone." A key condition for CCS success is to ensure that governments and society at large understand the need for CCS and trust its cost-competitiveness and reliability. This requires demonstration at scale. For example, the public has limited knowledge about the fact that CCS is currently the

only way to collect CO₂ from heavy industry, such as cement and other industrial facilities. Another challenge is that national governments and regulators are not incentivised by a global level decarbonisation agreement. Shell believes that incentives must be created by the regulator for any low-carbon energy solution, whether renewable energy or CCS, to price the negative externalities of CO₂. To this end, Shell advocates a functioning Emissions Trading System in order to achieve a robust CO₂ price. Essentially, Shell prefers to work in a level playing field - with a predictable and stable but higher CO₂ price - rather than in an unregulated and globally fragmented policy environment.



Innovation

Intersleek, AkzoNobel's Marine and Protective Coatings flagship brand, launched a new version in 2014: Intersleek1100SR, designed to repel and release slime from the underwater surface of ships. Contrary to earlier generations of foul release coatings, Intersleek1100SR also works for ships that move at considerably lower speeds. Product development was driven by the Marine Marketing Team. A dedicated team of experts from many different fields, including manufacturing, sales, business and commercial, was put together to ensure delivery. To warrant that Intersleek1100SR lasts for at least five years, it was tested both in the laboratory and in the field. Intensive research to understand slime growth and the development of appropriate screening tests reduced the development time from the conventional 10 years to less than four years. Laboratory testing was carried out both at AkzoNobel and with independent academics. In-service full-vessel performance data from the world's leading ship owners and operators were involved in the initial test patch and subsequent full-vessel testing. In return, about 20 customers were given the opportunity of gaining early experiences with the new technology, usually at a fraction of the normal cost.

Business case

Since 1996, when Intersleek425 was introduced to the market, Intersleek technology has been applied to nearly 2,000 ships, which is the largest foul release track record within the industry. The older foul release technologies had addressed macro-fouling (e.g. barnacles), but had come under greater scrutiny from customers for slime fouling. With Intersleek1100SR, AkzoNobel addresses slime, as well as such key market requirements as fuel consumption reduction, operating and maintenance costs, and the minimisation of dry dock expenditure. Within a relatively short time of Intersleek1100SR's market launch, investments in the development and launch costs were paid back. Intersleek1100SR is AkzoNobel Marine & Protective Coatings' fastest growing foul release product.



"This innovative solution is a prime example of how we are constantly striving to develop new technologies that provide sustainable value to our customers, along with other benefits such as certified carbon credits when they use our products. The development of solutions such as Intersleek 1100SR is integral to our Planet Possible approach to doing more with less, underlining our commitment to putting sustainability at the heart of everything we do."

Ton Büchner
CEO, AkzoNobel



Impact

With Intersleek1100SR, vessels can improve their fuel efficiency by up to 9%. AkzoNobel has carried out a detailed eco-efficiency analysis according to ISO standards, which was independently validated by the Swedish Environmental Research Institute. Compared to traditional biocide-containing antifouling, Intersleek lowers the overall environmental impact, due to reduced raw material consumption throughout its life, reduced waste (from fewer cans and lower levels of surface preparation), reduced waste toxicity generated during repairs and reduced transportation of finished goods. In 2014, AkzoNobel also introduced the shipping industry's first digital tool enabling operators to accurately assess and predict the risk of fouling, depending on which routes are being traded. The digital tool analyses data streams in order to draw up an accurate risk profile, which is used to tailor a coating system to a vessel's route.

Challenges

Four challenges can be mentioned. First, Intersleek is more expensive than traditional biocidal antifouling products. Customers need to understand their specific fuel-cost savings before they are willing to invest in a more expensive foul release product. Also, AkzoNobel is collaborating with the Gold Standard Foundation, whose certification enables Intersleek customers to generate carbon credits (or, in other words, income), thereby rewarding the CO₂ emission reductions they achieve. Furthermore, customers in the shipping industry can be conservative, tending to wait for large players to act as first movers before considering a new foul release product. Thirdly, Intersleek products cannot be applied below 0 °C, so the winter season is not fully productive in some countries. Finally, Intersleek contains organic solvents, although they are well below the standards set by any legislation or levels found in other fouling-control products. AkzoNobel is looking to further reduce the negative impact of these materials.



HEINEKEN - Revolutionary bottle cooler



Innovation

Cooling is essential to HEINEKEN consumers' enjoyment of beverages. However, cooling contributes to almost 30% of the company's total carbon footprint. To reduce this, HEINEKEN takes action in various ways. For example, it co-founded a consortium that has developed a highly efficient commercial refrigerator, the "iCOOL". HEINEKEN has committed to becoming one of its prime end users. The consortium started with a clear target: to develop a fridge that uses only 20% of the energy of a conventional fridge compared to 2010. An iCOOL fridge contains a cold buffer; an ice bank of about 10 kilogrammes, to cool down the new warm bottles of beer in the fridge. A small compressor that works non-stop keeps the beer cold and builds up the buffer. By means of a patented air-flow system, the air is continuously circulated through the fridge to transfer the cold to the beer. HEINEKEN's Global Innovation team initiated the project, with its R&D Department also being involved. HEINEKEN added value in terms of time investment, in particular, setting the necessary design specifications, providing the test standards, and giving technical and commercial guidance during different project stages. The total period between incubation of the idea and its market launch was four years.

Business case

The consortium, consisting of various European companies, was granted EUR 900,000 from the EU's Seventh Framework Programme for Research and Technological Development. Re-ment, a cooling development company, acted as the key development partner. iCOOL fridges will be used within a business-to-business context, such as cafes, sports facilities, restaurants and supermarkets. The benefits for HEINEKEN and its customers are significant. The savings on the electricity bills are passed on to HEINEKEN's customers. Offering state-of-the-art refrigeration to outlet owners is key. Delivering better fridges facilitates more sales. iCool is one way to do that. The learnings from iCool help to further improve the fridge portfolio.



"We have to work in partnerships to create step-change innovations. iCOOL shows how a new innovative approach can save up to 80% of the energy used. The project will accelerate green cooling even further."

Jean-Francois van Boxmeer
CEO, HEINEKEN



Impact

The iCOOL refrigerator prototype delivered a more than 80% improvement in energy consumption (measured as kilowatts per hour per year) compared to standard commercial refrigerators in 2010. HEINEKEN developed a test protocol and the HEINEKEN Energy Efficiency Index to measure progress of its fridge portfolio. HEINEKEN's target is 50% energy reduction by 2020. Every year, these specifications are tightened, which further incentivises the company's cooling suppliers to innovate. Fridges that do not meet the Index's criteria are no longer purchased. As the iCOOL prototype is highly efficient, it fits perfectly well in HEINEKEN's global ambition. Currently it is being adapted for a commercial roll-out. Old refrigerators are generally taken back and either reused or recycled - whether the customer leases, rents or owns the refrigerator.

Risks and challenges

At the beginning of the project, it was not at all certain that the ambitious target - an 80% reduction - would be achievable. Normally, when a refrigerator is developed, the project is successful when the cooling specifications are met for a given cost-price target. In this project, however, the guiding principle was the 80% energy reduction target. A challenge was that, initially, the team was primarily focused on technological aspects. The first prototypes used technology that was difficult to scale up to mass manufacturing. If ramifications for industrialisation had been considered at an earlier stage, more speed and a lower cost price would have been possible.



Innovation

At a FrieslandCampina factory in Borculo, the Netherlands, wood oil will be sourced through the process of pyrolysis. In this process, wood chips are mixed with hot sand. The wood oil is produced through a thermochemical breakdown of the wood chips at elevated temperatures (in the absence of oxygen). The pyrolysis technology was invented at the University of Twente two decades ago. The company Empyro then developed its commercial use. FrieslandCampina is a launching customer, having signed a 12-year contract for the purchase of pyrolysis oil, which will cover 80% of the pyrolysis factory's production capacity. FrieslandCampina will use the energy to generate steam for its milk powder production. The pyrolysis plant will be located in Hengelo, the Netherlands, on AkzoNobel's site, which will use the pyrolysis factory's waste heat. FrieslandCampina aims to use LNG lorries for transport, the wood oil will be transported over 30 kilometres to Borculo. As the factory in Borculo was expanding overall, the energy procurement team and the factory director intervened at just the right moment. Guided by the company's "Route 2020" sustainability goals, the team successfully aligned all stakeholders around the business case. Within two years of the idea's inception, the deal was sealed.

Business case

This innovation is in its start-up phase. The factory is scheduled to be finished by the end of 2014. The pyrolysis factory's design and construction involve investments of about EUR 19 million - funded by a combination of financial support from the

European Commission, the Dutch Ministry of Economic Affairs under the Top Sector Energy programme, the Province of Overijssel, the Energy Fund of Overijssel and a private investor from the region. Without public funding, the costs would have been too high for FrieslandCampina, AkzoNobel and Empyro. The switch from gas to wood oil is cost neutral. A key benefit for FrieslandCampina is that it learns about different energy technologies, ensures that its energy portfolio is in line with the company's Route 2020 strategy and that it is at the forefront of developments. The pyrolysis innovation will increase FrieslandCampina's energy security and make the company more flexible in adapting to future energy sources.



Impact

Pyrolysis oil is a greenhouse gas neutral biofuel. As FrieslandCampina's Borculo plant normally uses more than 30 million m³ of natural gas annually, the use of wood oil results in a 15% carbon footprint reduction. This will generate substantial

"As a dairy cooperative with nearly 20,000 member dairy farmers, we work to assure our long-term continuity. We want to guarantee the continuity of our organisation and hope to make our earnings model resilient to future challenges to sustainability. That is why FrieslandCampina invests in the use of sustainable energy."

Cees 't Hart
CEO, FrieslandCampina



fossil fuel savings (10 million m³ of natural gas and 16,000 tonnes of carbon reduction, which equals the carbon emissions of nearly 2,000 households annually in the Netherlands). Pyrolysis oil is second-generation biomass technology and does not interfere with the food chain. Additionally, jobs are being created for approximately 100 man-years in the Province of Overijssel. FrieslandCampina is now looking into opportunities to scale up and apply this innovation at other Dutch sites.



Risks and challenges

There have been and will be several technical challenges. For instance, one specific challenge is that the gas burners need to be adapted to burn wood oil instead of gas. However, the best way to overcome any such challenges is to involve a multi-disciplinary team with experts from FrieslandCampina and its partner companies. For instance, there is close collaboration between FrieslandCampina's R&D Department, employees operating on-site in Borculo and Empyro to overcome these technical challenges. Should it be necessary, the Borculo factory can switch back to natural gas with limited intervention. However, as it is expected that sufficient wood waste will always be available in the region of Borculo, this risk is unlikely to materialise.



KLM - Lightweight cargo nets



Innovation

It is vital for KLM to take responsibility for lowering carbon emissions, reducing dependence on finite fossil fuels and securing supply of renewable energy. Through the Climate Action Plan, which focuses on fleet renewal, improving operational efficiency, use of sustainable biofuel and offsetting, KLM aims to reduce its carbon footprint by 20% by 2020. As part of a range of initiatives driven by KLM's environmental strategy, one of the recent innovations are lightweight cargo nets.

Air France-KLM-Martinair Cargo, AmSafe Bridport and DSM have co-created an innovative product: DSM Dyneema® lightweight air cargo nets. These nets weigh just 9 kilogrammes, which is 50% less than conventional nets. KLM first began thinking about the benefits of lighter air cargo nets after DSM Dyneema® supplied the raw material for stronger cockpit doors. This led both companies to think about other ways in which strong yet lightweight solutions made with DSM Dyneema® could benefit the airline's operations. In mid-2013, Air France-KLM-Martinair Cargo became the first commercial airline to replace its polyester (PET) aviation pallet nets with air cargo nets made of DSM Dyneema®. The Equipment Control Manager at Cargo teamed up with the central Procurement Department to drive progress. The total period between the idea's inception and implementation was 10 years, being a combination of thorough testing and developing the necessary business plans.

Business case

With Air France-KLM-Martinair Cargo as a launching customer, the innovative cargo nets are successfully being scaled up. As the nets have half the weight of the conventional polyester nets, Air France-KLM-Martinair Cargo saves 795 litres of fuel per net per year, resulting in a great cost reduction. Due to their lower weight, the nets also reduce operational cargo-handling time. While the nets are more expensive, the savings in weight and lifetime more than outweigh the purchasing costs. In addition, their qualifications in terms of strength, ductility, fire safety and water resistance are key. The investment costs were limited: a combination of time to work on the specifications and a small budget to fund the testing of the first 100 nets in 2005.



"These lightweight nets can lead to important reductions in greenhouse gas emissions, being the latest in a series of efforts we are taking to reduce our carbon footprint. Using DSM Dyneema® lightweight nets means that operatives can handle them more easily and safely. The nets are more damage-resistant than polyester nets and therefore require around half as much maintenance, which results in significant cost savings."

Pieter Elbers
CEO, KLM



Impact

By using DSM Dyneema® nets, CO₂ emissions are reduced by 2.5 tonnes per net per year. With a total of 22,000 nets for the group, Air France-KLM-Martinair Cargo saves approximately 55,000 tonnes of CO₂ emissions annually. Moreover, there are also social benefits. The lighter weight allows employees to work in a safer and ergonomically better way. In 2.5 years' time, all nets will gradually be replaced. The nets are more durable: they last five instead of three years. The old nets are being recycled into plastic covers to protect the freight when standing outside, to give one example.

Risks and challenges

During the start-up phase, the main challenge was that the first producer of the lightweight nets went bankrupt. However, DSM and KLM-Martinair Cargo successfully collaborated with AmSafe Bridport to purchase the patent and continue the development of the nets. Moreover, it was a challenge to coordinate the companies' departments, taking the requirements of three operating carriers into consideration.



Unilever - Tropical Forest Alliance 2020



Innovation

Unilever played a significant role in the creation of Tropical Forest Alliance 2020 (TFA 2020), a public-private partnership in which partners take voluntary actions both individually and collectively to eliminate tropical deforestation associated with the sourcing of such commodities as palm oil, soy, beef, paper and pulp, especially in Southeast Asia, Central and West Africa, and regions of South America. It provides a marketplace to broker public-private action and facilitate knowledge exchange. TFA 2020 was catalysed by the Consumer Goods Forum (CGF) commitment to mobilise resources to help achieve zero net deforestation by 2020 (the CGF members have a combined revenue of USD 3 trillion). On the initiative of Unilever's CEO and a former Chief Sustainability Officer (who simultaneously served as CGF Sustainability Group Co-Chair), discussions between the CGF and the US government before and during the Rio+20 conference in 2012 were started. TFA 2020 held its first workshop to catalyse action to reduce global tropical deforestation in Jakarta, 2013, and has since evolved into a multi-stakeholder partnership, involving a wide range of NGOs and the governments of the UK, Norway, the Netherlands, Indonesia and Liberia. Throughout, professionals from various Unilever departments, including Palm Oil Purchasing and External Affairs, have been closely involved.

Business case

Generally, Unilever has a strong incentive to help address climate change, the annual costs of climate change-related natural disasters (such as typhoons and droughts) affecting

the business coming to about EUR 300 million. Specifically, Unilever relies on palm oil to produce shampoo, margarine and soap, among other products. Since 2003, Unilever has been a founding member of the Roundtable for Sustainable Palm Oil, which ensures responsible use and certification of palm oil. All of the palm oil Unilever sources is traceable to known sources. By 2020, all palm oil must be sourced from sustainably certified, traceable sources. Although Unilever is the world's largest palm-oil buyer in absolute terms, its purchasing volume represents only 3% of global production. Independently, Unilever is not in a position to stop palm oil-driven deforestation. Deforestation is a complex issue requiring an effective institutional mechanism to share the costs and jointly invest in an enabling policy environment.



“Business has to be part of the solution. It only takes a handful of sizeable companies to reach a tipping point and to transform markets - and that is exactly what we are trying to achieve through the Tropical Forest Alliance 2020 and other initiatives. Left unchecked, climate change has the potential of becoming a significant barrier to growth. It must be addressed in a systemic way.”

Paul Polman
CEO, Unilever



Impact

On an operational level, individual companies undertake the work in sustainable sourcing. The TFA 2020 focuses on a limited number of priority actions that have the greatest potential of delivering results at scale. For example, government involvement is required to put in place mechanisms for land use and planning, and to enforce regulations and laws. To enable government officials to perform those tasks, the TFA 2020 financed a Google tool enabling real-time monitoring of deforestation. In various sub-Saharan countries, including Liberia, Ivory Coast, Cameroon and Ghana, governments, businesses and NGOs are collaborating to develop sustainability standards via the TFA 2020. Potentially, such standards could provide the basis for palm-oil sourcing regulation across Africa.

Risks and challenges

As is the case with participation in any multi-stakeholder alliance, there are trade-offs for individual members. Sometimes, the Alliance's ambition levels differ from Unilever's. For example, Unilever supports a rigorous and strict definition of high carbon stock forests. Unilever would rather see this standard applied throughout the industry. However, a group of growers first wants to validate the science which underpins the definition. In such a situation, Unilever has to invest time in a group initiative; at the expense of time it would prefer to invest elsewhere. However, if the company intends to fulfil its ambition of transforming the entire market, it must obtain the support of all players.

5. The post-2015 UN Development Agenda

In this chapter, the Dutch Sustainable Growth Coalition members underline their endorsement for existing covenants and frameworks regarding the involvement of the private sector in the post-2015 UN Development Agenda. In addition, eight case studies illustrate how the DSGC companies' innovations are already offering scalable solutions to some of the developing world's biggest challenges.

Innovations

The DSGC members present eight case studies that explain how multinational companies can provide scalable solutions. Each case starts off with background information on the innovation and how it came about. Next, the business case is set forth. Third, the impact of the innovation and the extent to which the innovation is (or can be) measured are highlighted. Last, risks and challenges are shared.

The cases selected impact food security and nutrition (AkzoNobel and DSM), sanitation and health (Unilever and Philips), biodiversity (KLM) and economic empowerment through local sourcing (HEINEKEN, Shell and FrieslandCampina).

Product and service innovations

The innovations of Unilever, AkzoNobel, Philips and DSM illustrate how multinational companies can develop (or reconceive) a product or service for low-income consumers - also called "the base of the pyramid" (Prahalad, 2002). Their innovations give economically poor consumers access to nutrition, sanitation and health care at affordable prices.



Value chain innovations

The innovations of KLM, FrieslandCampina, HEINEKEN and Shell demonstrate how companies can use their influential position in the value chain. The latter three cases deal with a "framework condition deficiency", such as a lack of local infrastructure or difficult access to finance for SMEs. In the typology of Michael Porter's "Creating shared value" article as explained in Box 1 of chapter 3, such innovations could also be labelled "local cluster development" or, in the words of the DSGC, "systemic innovations".



In the Shell, FrieslandCampina and HEINEKEN cases, the companies act both as launching customers and as co-creators of new (or newly sourced) products or services.

Phase

The FrieslandCampina, Philips and HEINEKEN innovations have only started off in the last two years and are still in their start-up or pilot phase, while the KLM, Unilever, DSM, AkzoNobel and Shell cases are being scaled up.

Statement

A Dutch coalition of stakeholders has agreed on a covenant addressing the role of the private sector in the post-2015 UN Development Agenda. The DSGC members fully endorse this covenant, which was drawn up by think tank Worldconnectors, in collaboration with the Dutch Ministry of Foreign Affairs and a wide variety of civil society organisations. The DSGC also appreciates the WBCSD Action 2020 programme and work done by the UN Global Compact (please see Appendix 3 and Appendix 4).

Innovation

Lifebuoy soap was launched in the UK by William Lever in 1894 to fight cholera. Today, Lifebuoy anti-bacterial soap products are tailored to the needs of millions of low-income consumers in developing and emerging markets. In 2005, Lifebuoy launched an integrated social brand mission: to reach 1 billion people by 2015. This mission is being addressed by a variety of Unilever departments. For example, to make the soap accessible at low cost, the R&D and Packaging Department developed a low-cost pump (about USD 0.50) and has played a key role in reducing the quantities and size of packaging. Furthermore, the latest technology of Activ Naturol Shield with TT (the most superior germ kill active in the portfolio) is also used for small-sized stock-keeping units. In addition, the Marketing Insight Department has helped create the cheapest and most scalable methodology to measure behavioural change through an innovative diary. Each of these three interventions illustrates how Lifebuoy makes soap accessible to consumers that would otherwise have been unlikely to wash their hands. The Lifebuoy brand is subject to regular commercial targets; the team has not been “shielded” from conventional business targets.



Business case

Lifebuoy is one of Unilever’s fastest-growing brands. Globally, about 60% of Lifebuoy consumers come from the emerging or middle-class markets. The other 40% comes from the “base of the pyramid”, which means that this segment lives only on a couple of US dollars per day. Between 2010 and 2012, the product achieved double-digit growth. Furthermore, having embedded a social purpose into the Lifebuoy brand has led to greater exposure and attention, which, in turn, helps to develop new markets. The brand’s mission has become a key differentiator in an increasingly commoditising anti-bacterial soap market. In addition, the mission stimulates Unilever’s talent attraction and retention.

Impact

Since 2010, Lifebuoy soap has reached 183 million people worldwide. Every year, diarrhoea and pneumonia claim the lives of 1.7 million children under the age of five. Clinical research shows that hand-washing with soap on key occasions, such as after using the toilet and before eating, can cut the risk of diarrhoea by up to 45%. By adopting a village in India, Lifebuoy has demonstrated that the minor intervention of hand-washing behaviour can bring down the incidence of diarrhoea from 36% to 5%. Every bar sold contributes to reduced infections. Lifebuoy is also designed to kill 99% of bacteria within 10 seconds, helping mothers worldwide that struggle with their kids to effectively wash their hands. These figures are constantly monitored through independent testing by globally accredited labs.

“Hand-washing with soap is the most cost-effective way to prevent child deaths. The simple but life-saving act of hand-washing with soap could help many more children reach the age of five. Our innovative Lifebuoy products are saving lives, while at the same time generating double-digit growth for our business.”

Samir Singh
Global VP, Lifebuoy



Risks and challenges

To reach 1 billion people by 2015, the key challenge is to change hand-washing behaviour in a cost-effective way, which requires a high level of public awareness. To this end, direct contact with children and mothers is sought via schools, health clinics, women’s groups and mass media (including new digital and TV formats). Lifebuoy is increasing its rural outreach by partnering with non-profit organisations and setting up programmes with other (Unilever) brands. Unilever’s global advocacy team is raising awareness of hygiene issues with governments, key opinion formers and wider communities to forge partnerships. As changing hygiene habits is strongly related to general water and sanitation issues, Unilever is partnering with key organisations such as UNICEF and the World Toilet Organisation with an integrated strategy.





Innovation

Ferrazone tackles iron deficiencies by fortifying staple foods and beverages, such as wheat and maize flour and sauces, with iron. It leaves no metallic taste when added to food and remains stable under storage and cooking conditions. Molecule research and field tests proved that Ferrazone is highly bioavailable; it is absorbed by the human body at least two to four times better than alternatives. In 2000, AkzoNobel realised that food-fortification programmes of the UN and NGOs would increasingly require iron. Steered by the strategic business unit Chelates and Micronutrients, a task force was formed with marketing, technical development and R&D experts. Ferrazone, developed by AkzoNobel Functional Chemicals business unit, was introduced to the market in 2003. In 2006, the product was introduced globally and food approvals in the USA and the EU were obtained. Altogether, the period between the idea's inception and its market launch was three years.

Business case

According to the World Health Organization (WHO), iron deficiency is a global top-10 health issue, affecting 2 billion people, particularly infants, children and women of reproductive age. The WHO recommends iron EDTA (Ferrazone) as the only iron suitable for fortification of high-extraction wheat and maize flour. AkzoNobel's target is to annually reach 100 million people by 2020. Ferrazone is sold for use in Super Cereal Blends of the UN World Food Programme, as well as being sold to other fortification

programmes and private companies. The majority of sales are made through global companies that sell food ingredients (pre-mix) to NGOs and food manufacturers. Since 2003, the Ferrazone business has about doubled every three years.

Impact

Iron-deficiency anaemia causes a loss of physical endurance due to reduced levels of haemoglobin and tissue iron. During pregnancy, iron deficiency is associated with increased risk of maternal mortality. In infancy and childhood, it is linked to significant loss of cognitive abilities and lower resistance to infections. Since 2003, Ferrazone has been used to prevent iron deficiency among an estimated 100 to 150 million people in the developing world. On the basis of data from NGOs and public sources, AkzoNobel estimates that Ferrazone has contributed to the prevention of the impaired cognitive development of approximately 5 to 10 million children below five. A similar impact on the prevention of maternal deaths was estimated to include 500 to 1,000 mothers. In 2013 alone, approximately 25 million people benefited from programmes to fortify staple foods with Ferrazone, for example in Africa and Asia, and in refugee camps. AkzoNobel actively engages in partnerships with the Dutch Ministry of Foreign Affairs, NGOs and other leading companies. For example, for the fortification of fish and soy sauce, Ferrazone is delivered to Cambodia via the Global Alliance for Improved Nutrition and the country's Ministry of Planning.

"Iron deficiency has long been a curse for the health of women and children in the developing world. We are now able to tackle this issue through Ferrazone, a commercially viable innovation from AkzoNobel, which is helping millions across the globe."

Kees Oudijk

Business Development Manager, Ferrazone, AkzoNobel



Risks and challenges

Initially, the task force had limited insights regarding food issues, requirements and legislation, and it lacked the necessary internal and external (stakeholder) networks. After developing a value proposition supported by scientific claims, these claims had to be accepted by the WHO as the most suitable iron for fortification. Meanwhile, competitors offered cheap alternatives that are less well absorbed by the human body. Severe risks exist for the use of unqualified grades. The task force invested significant time in technically educating stakeholders about Ferrazone's qualities. Certain regulations regarding the use of specific ingredients for young children limit the growth of Ferrazone, as well as registrations in, for example, India. AkzoNobel works with various partners on industry-wide quality standards. Furthermore, although mass food fortification with Ferrazone is increasingly accepted in developing markets, its implementation is slow. Buyers tend to focus on price instead of quality.





Philips - Remote intensive care support



Innovation

The Philips Innovation Campus (PIC) in Bangalore, India, designed a comprehensive remote patient care solution to enable intensivists to provide critical care through 24/7 monitoring: IntelliSpace Consultative Critical Care (ICCC). ICCC was launched in 2013 and helps drive consistent quality and standardisation of care delivery, especially where there is an acute shortage of trained intensivists. It enables patients who require attention in a critical care setting or illness to be monitored and evaluated by qualified intensivists from a central operating room, one of which is located in Chennai, India. Philips' critical data acquisition system, coupled with the latest audio-visual technology, is used to connect the intensivists almost in real time without compromising on quality of information. Philips has been offering tele-intensive care support for hospitals in the USA for many years, to improve the quality of intensive care. In order to introduce it in India and other emerging and developing markets, the solution had to be tailored to local needs to provide a cost-effective solution and adapted to local workflows. The ICCC solution is scalable and can manage over 500 beds from a single operating room. It provides a solution for the growing shortage of qualified intensivists while improving the quality of care. The total period between incubation and implementation of the idea took eight months.

Business case

Given that Philips has been a market leader in patient monitors and connected care solutions for decades, ICCC is a natural extension, providing the same quality care, irrespective of the patient's place across the continuum of care. For Philips, the solution represents an important growth market. It is rapidly evolving as one of Philips' flagship innovations in the broader portfolio, for which the company designs for growth geographies in South Asia, the Middle East, Africa and Latin America. Given the anticipated lack of trained intensivists in the coming years, this will be an area in which Philips will continue to invest, in order to enable access to quality healthcare in India and other emerging markets.



"India and other growth geographies are increasingly important, not just as markets, but as centres of innovation excellence for Philips. We believe that innovation must be locally relevant to be meaningful. That requires innovating close to and often directly alongside our customers, wherever they are in the world. This is a fundamental part of our innovation strategy and the reason why we continue to invest in centres of innovation excellence that have an impact locally as well as in expertise that we can leverage globally."

Jim Andrew

Chief Strategy & Innovation Officer, Philips



Impact

Since 2013, 10 hospitals in India have been connected to the command centre in Chennai. By mid-2014, 5,000 patients will have been monitored by ICCC. Over the next few years, the company expects this number to grow in more developing and emerging markets outside of India as well. Next to improving intensive care, ICCC also enables on-site clinical staff to connect and collaborate with other specialists.



Risks and challenges

The key risk is that the user - the intensivist - of the ICCC solution uses the technology inadequately. To mitigate this risk, an integrated part of the service is extensive training and ongoing guidance and support, both at the start and in aftercare. A general challenge for Philips and the care-giving community at large is the scarcity of intensivists. The command centre in Chennai has sufficient room for intensivists to service all hospitals that require intensive care in the region, but only a handful of intensivists graduate each year. The ICCC solution is most likely to reach scale structurally in the event of natural growth in the number of intensivists from India.

Innovation

Polished, white rice has little nutritional value, as most nutrients, vitamins and minerals are lost when the bran and germ are removed. DSM has been able to develop a facsimile kernel that looks exactly like a rice kernel: NutriRice™. One such fortified facsimile kernel is mixed into every 100 rice kernels. DSM furthermore has developed two complementary technologies to fortify rice: one in Costa Rica with a local partner and the other in China with Swiss technology company Bühler. Within three to four years, both technologies were ready for the market. In 2004, DSM introduced the locally developed technology in Costa Rica. In 2011, the technology originating from China entered the South African market. In 2012, DSM decided to focus on supplying micronutrients rather than on fortification technology only. As such, DSM was not limited to specific rice fortification methods. Since the beginning of 2013, DSM has been exporting fortified kernels from Costa Rica to Uruguay. The NutriRice™ innovation team has been coordinated by a marketing professional, who led a multi-disciplinary team of R&D, commercial and sustainability professionals. Throughout the process, all team members involved were given sufficient leeway to dedicate their time to the development of NutriRice™.

Business case

Globally, 2 to 3 billion people eat rice on a daily basis as their staple food. DSM operates in a normal, competitive market and is not the sole supplier of fortified kernels or nutrients for rice fortification. NutriRice™'s go-to-market strategy takes a 2-track approach. The primary focus is on the United Nations World Food Programme (WFP), which is DSM's key distribution partner. DSM operates joint projects in many countries. The most comprehensive project is run in Bangladesh, aiming to enable the country-wide fortification of rice. In addition, as noted above, NutriRice™ is offered in commercial markets through DSM's customers.



“NutriRice is a clear example of how scientific innovation can be partnered with new sustainable business models to fight the war against hidden hunger. Working collectively with our partners, we can be sure that we are reaching and impacting those who need it the most. Our role is not only to provide solutions, but also to ensure they reach individuals and society at large.”

Feike Sijbesma
CEO, Royal DSM



Impact

Rice fortification is a proven technology that directly contributes to tackling global malnutrition. WFP and the Dutch Minister for Foreign Trade and Development Cooperation have proven to be strong implementation and financing partners, respectively, on this journey. Rice fortification is one example of DSM's product innovations in this area. Another significant example comes from DSM's micronutrient powders, which consumers can add to their food - a product widely used by UNICEF and WFP. Key projects are taking place in many countries, such as Bangladesh, Cambodia, Nepal, Kenya, Zambia and Afghanistan, where a total of 16 million people are reached annually. By 2015, on the basis of the WFP food aid programmes, DSM targets to reach 25 to 30 million people, the majority of whom live on just USD 1.50 a day.

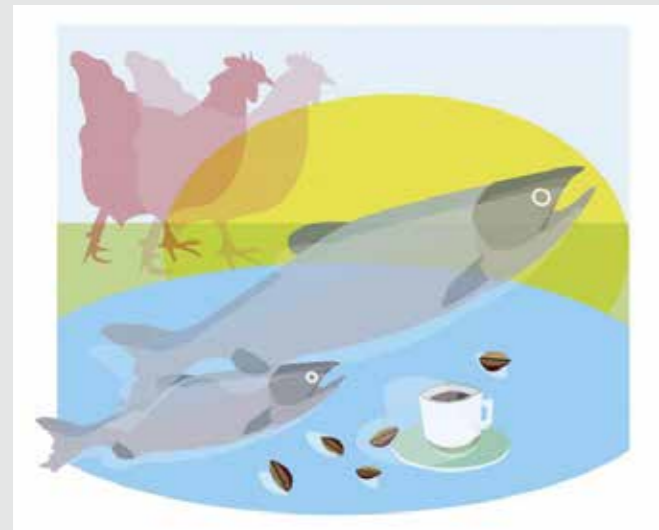
Risks and challenges

First, to assure cultural acceptance, fortified, facsimile kernels need to be identical to rice kernels. Middle- and higher-class consumers are more sensitive to marketing and appreciate the coloured kernels. Lower-class consumers, on the contrary, initially thought that the fortified kernels were added by mistake. They would take them out and feed them to their chickens. For them, it is key that all rice grains look the same. It is a challenge to create the right kernel shape and colour. The inclusion of such nutrients as iron can lead to grey discolouring. Second, it takes significant time to convince stakeholders at all levels in the value chain of the importance and benefits of rice fortification. Third, at DSM, NutriRice™ is a long-term innovation. Internal competition for resources was an issue at times. However, now that a tipping point in terms of commercial success seems to be nearing, the investment has been worth it.



Innovation

Serving around 40 million meals a year, KLM continuously develops a sustainable catering policy by increasing the number of sustainable or certified products. The policy is focused on biodiversity, with the focus areas of fish, palm oil and soy, and includes a 2020 ambition to offer 100% sustainable catering products on flights departing from Amsterdam. Driven by KLM's sustainability ambitions, KLM Inflight Services product managers and buyers are given the leeway to seek opportunities in the supply chain, on a case-by-case basis. In 2008, KLM conducted a pilot with the Marine Stewardship Council (MSC). MSC-certified fisheries account for nearly 10% of worldwide fishing volumes for human consumption and are based on three principles: sustainability of exploited fish stocks, maintenance of the ecosystem on which the fishery depends, and effective and responsible management.



(image: Studio Annabel)

Business case

Currently, fish certified by the MSC or the Aquaculture Stewardship Council (ASC), or fish from the 'green column' of the Fish Guide developed by the North Sea Foundation and WWF-NL is served on all of KLM's flights departing from Amsterdam. At destinations where this cannot yet be guaranteed, KLM applies its own sustainability standards. The sustainably catered products are not "add-ons" to existing contracts. In a cost-neutral way, changes are made to contracts and effectively negotiated, especially at the time of contract renewal. Products are removed from the menu when they are unavailable with the right certificate or within the available budget. As KLM was the first airline to offer MSC-certified fish on board, the company could distinguish itself from its competitors. KLM's sustainable fish policy was recognised in March 2010, when the company was given the Seafood Champion Award, an annual incentive prize awarded to companies that make a special contribution to sustainable fishing.

"KLM's role and impact in sustainable catering is significant. In partnership with the World Wide Fund for Nature the Netherlands, we challenge ourselves and our catering suppliers to use sustainable products and to minimise our impact on biodiversity."

Roel Verwiel

Food and Beverage Manager, KLM Inflight Services



Impact

Due to the volumes being processed, KLM can use its purchasing power to influence sustainable production processes. KLM offers ready-made meals and is positioned at the end of the supply chain. Switching to sustainable products requires adaptation throughout the value chain. In the case of MSC-certified fish, all parties - from local fisheries to the suppliers preparing the meals - must comply with MSC traceability requirements. KLM systematically contacts all its suppliers to explain the criteria for sustainable soy and palm oil, often being the first company to do so. In many cases, suppliers are not yet aware of the sustainability issues and impact of products like soy and palm oil, and of possible solutions. KLM is a partner of the World Wide Fund for Nature the Netherlands (WWF-NL), which advises on the development of the catering policies. Next to product and supply chain impact, customer awareness about sustainability is enhanced through ongoing communications about the products served.

Risks and challenges

Some sustainably certified products cannot be sufficiently supplied over a longer period of time. Additionally, access to products can be difficult. For some products or ingredients, KLM suppliers do not require large volumes and, therefore, have limited leverage towards parties in their supply chain. On the other hand, there is competition because of scarcity between KLM and other consumers, like supermarkets. Furthermore, sustainable products can sometimes be more expensive, forcing KLM and its suppliers to look for creative ways of meal preparation at the same price level. The biggest challenge is customer perception. Although KLM's role in and impact on sustainable airline catering is significant, customer surveys have indicated that passengers do not yet see the importance.



Innovation

To boost local milk production in Indonesia, where 80% of milk is imported, FrieslandCampina initiated the Dairy Development Programme (DDP). Currently, limited access to arable land prevents small land holders from expanding their farms and keeps aspiring dairy farmers from setting up new farms. FrieslandCampina liaises with the authorities to lease government-owned land to dairy farmer cooperatives. Furthermore, most farmers, who hold two or three cows on average, can usually only successfully submit a loan request, via their cooperatives, if the loan serves to buy more cows. Through the programme, revolving funds can be created, for example with the Rabobank Foundation, that enable loan requests for other investments as well, for example for farming equipment. FrieslandCampina will deduct interest and loan repayments from milk payments, transferring them to the bank. The Dairy Village programme is part of the DDP and is supported by the Sustainable Entrepreneurship and Food Security Programme (FDOV) of the Dutch Ministry of Foreign Affairs. It is a partnership between Royal FrieslandCampina and its subsidiary Frisian Flag Indonesia (FFI), KPBS Pangalengan, KPSBU Lembang, The Friesian, DLO/Wageningen University and Research Centre, and Agriterra. Supported by the subsidies and CSR teams based in the Netherlands, among others, the FFI dairy development team has acted as a driving force from the start. The period between the idea's inception and its implementation was two years.

Business case

FrieslandCampina has been active in Indonesia for almost 90 years, processing 600 million litres of milk annually. About 18% of that milk is supplied locally. To stimulate the Indonesian economy, the government is aiming at 50% self-sufficiency for local fresh milk production by 2025. By reaching out pro-actively as a partner in realising this ambition, FrieslandCampina is able to secure and expand market access. FrieslandCampina invests EUR 3.2 million, the Dutch Ministry of Foreign Affairs invests EUR 4 million and the two Indonesian cooperatives jointly invest EUR 2.8 million in the DDP. For a 5-year period, this budget will serve to purchase "hardware" (such as milk-cooling tanks and farming equipment), as well as "software" (such as training and knowledge dissemination). For FrieslandCampina, this investment is expected to pay off in 10 to 15 years.



"The aging of farmers around the globe (the average age being 57 years) is a real challenge. No farmers, no food. Some 750 to 900 million people worldwide depend on dairy farming for their food and income. FrieslandCampina can help by offering young farmers good business prospects in the regions in which we are active; not only in Europe but also in Asia and Africa."

Cees 't Hart
CEO, FrieslandCampina



Impact

The DDP targets the two largest dairy farmer cooperatives in Indonesia, each of which has over 5,000 members. Currently, farmers often have to work additional jobs to earn a living wage. Furthermore, selling cows for meat production remains a tempting alternative. The DDP aims to lift the members out of poverty by ensuring that dairy farming becomes an activity that is sufficiently productive, so that farmers do not have to work additional jobs. This, in turn, increases the likelihood that farmers' children are willing to succeed their parents. The economic, social and environmental impact of the DDP is evaluated and monitored by the Centre for Development Innovation of Wageningen University.

barrier. A second challenge is the availability of fertile land. Diversification is key; cultivating the existing land too intensely creates long-term productivity risks. Another challenge is that farmers have limited knowledge about, and have no access to, nutritious cattle feed. To solve this, the DDP looks to dedicate specific pieces of land to grow maize and grass containing the necessary nutritional value.

Risks and challenges

One ongoing challenge is to find farmers who are eager to build the relevant economies of scale and who understand the benefits in terms of access to land and finance. Without highly effective campaigns and workshops, this will remain a key





HEINEKEN - Local sourcing of packaging in Haiti



Innovation

Strengthening an economy devastated by an earthquake in 2010 and creating jobs by attracting foreign investors are key priorities for the Haitian government, the Clinton Foundation and for HEINEKEN. In December 2011, HEINEKEN purchased Haiti's premier bottler and beer brewery, Brasserie Nationale d'Haiti (BRANA). Soon after the acquisition, HEINEKEN found that the local availability of raw materials and packaging materials was very limited. Therefore, at the 2012 Clinton Global Initiative, a platform bringing together global leaders to create and implement impactful innovations, HEINEKEN committed to sourcing 20% of raw materials and 40% of packaging locally by 2017. These percentage rates are based on volumes and purchasing value. Publicly communicating the ambitious commitment gave the company a strong stimulus to ensure progress and speed. Teamed up with a packaging expert from the Supply Chain Group and a dedicated corporate advisor in the Netherlands, BRANA's Purchasing Department has been on track living up to the commitments.



Next to increasing local availability of packaging materials, HEINEKEN is dedicated to local sourcing of raw materials in Haiti

Business case

Every quarter, BRANA meets its packaging suppliers to discuss progress, based on the principle that, if prices of Haitian packaging become (nearly) as good as international prices, it is always worth to invest the time and effort to consider such packaging. As such, the intervention is cost neutral. It is convenient for BRANA to have suppliers nearby, as this reduces stock levels and, therefore, requires less working capital. In addition, sourcing from Haitian suppliers reduces risk in the area of transport and Custom handling. BRANA is a consumer goods company. Indirectly, it has a general interest in boosting local entrepreneurial activity, as this increases consumers' purchasing power.

Impact

By mid-2014, 30% of BRANA's packaging was sourced in Haiti. The majority of the packaging were pre-forms for PET soft drink bottles and bottle crates. The impact of local sourcing of packaging in Haiti on HEINEKEN's global carbon emissions has not yet been measured, as BRANA's operations are not yet within the scope of carbon footprint monitoring. BRANA has performed an economic impact assessment to better understand the economic impact of its local packaging commitment, including the contribution to local taxes and income.

"By offering our expertise, we support sustainable SME development in Haiti. As a partner for growth with a true focus on purchasing locally, we enforce scalable economic impact."

José Matthijsse
General Manager, BRANA (HEINEKEN in Haiti)



All local sourcing initiatives together will increase BRANA's contribution to the Haitian GDP by 4%. Furthermore, BRANA and six PET bottlers together invested in Tropical Recycling, a recycling company, in 2011. BRANA was a launching customer of this company's recycled bottles, which can also be used for crates. Tropical Recycling provides work for 25,000 plastic garbage pickers and cleaners.



Risks and challenges

In some cases, it was a challenge to cease the routine purchasing of packaging from companies abroad. The biggest risk still remains safeguarding a constant delivery of quality packaging, as BRANA needs high volumes of packaging that meets all standards on an ongoing basis. Should the supply by Haitian producers of packaging fall short, BRANA can still switch to its suppliers from, for example, Guatemala. For this purpose, relationships with packaging companies from Central America are maintained. The next step will be to source bottle caps and metallised paper bottle labels from Haiti, but this will require greater investments from suppliers. However much BRANA can guarantee a long-term contract, any such increased investment also increases the risk for suppliers.



Shell - Access to finance for suppliers in Nigeria



Innovation

The Shell Petroleum Development Company of Nigeria Limited Joint Venture (SPDC JV) is an unincorporated joint venture 30% of which is owned by SPDC, 55% by the Nigerian government, 10% by Total and 5% by Agip. In 2011, SPDC, on behalf of the SPDC JV, approached four large Nigerian banks to set up a USD 4 billion Contractor Support Fund Scheme to enable SPDC JV's suppliers to gain better access to loans. At the time, SPDC JV's contractors - including many small- and medium-sized entrepreneurs - had limited to no access to finance due to high interest rates and cumbersome loan procedures. Since the launch of the revolving fund in 2012, over USD 700 million has been made available to 41 indigenous contractors. The local content department has been the driving force behind the initiative, liaising closely with finance, legal, as well as contracting and procurement departments. The fund in Nigeria is available only to contractors with valid and subsisting contracts, which requires pre-clearance via the internal due diligence process.

Business case

In 2010, the Nigerian government introduced the Nigerian Oil and Gas Industry Content Development Law. The Act specifies Nigerian content percentage targets in about 280 categories, along with the measurement parameters. Shell Nigeria's local content strategy promotes the use of locally manufactured goods and services in production operations, projects and well engineering, and in some specific cases, local sourcing has resulted in significant cost saving for the SPDC JV. For example, access to the Contractor Support Fund Scheme has helped some local companies and their foreign original equipment manufacturers' partners in ongoing efforts to domesticate technical activities in Nigeria. The work categories covered include valve assembly, instrumentation and electrical parts manufacture. When completed, this initiative will significantly help to reduce production deferrals and warehousing costs. The fund has also delivered longer-term cost savings to the SPDC JV by facilitating indigenous marine logistics asset ownership.



"Shell's commitment to local content is not hinged on legislation alone, but is primarily a business strategy. We believe that we maximise our long-term competitiveness when we help to develop local capacity. The fund is one of several initiatives through which we seek to achieve this in Nigeria."

Igo Well

General Manager, Nigerian Content, SPDC JV



Impact

The most significant impact of this fund is that it has enabled 41 beneficiary Nigerian companies to acquire new assets and facilities, and to compete in more complex engineering projects that would previously have been out of reach. The fund is also part of a bigger strategy to support local content, through the stimulation of supplier development, R&D, training and manufacturing. In recognition of the company's achievements in this area, Shell companies in Nigeria won the Local Content Implementation Award at the recently concluded Nigerian Oil and Gas (NOG) conference in 2014. Following SPDC's pioneering role, other international oil companies like ExxonMobil Nigeria Unlimited and Total E&P Nigeria Limited have established similar funds.

Risks and challenges

With the fund being a pioneering initiative, some challenges emerged in the course of establishing and operating the fund. From the start, most participating banks had to strengthen their oil and gas desks to fully appreciate the dynamics of upstream oil and gas operations. The challenge of providing stable finance for relatively short-term contracts was an initial complication, especially with respect to interest rates and repayment periods. In addition, determining a fixed level of financing for variable sum contracts was a hurdle for the lending banks. SPDC's approach was to set up periodic progress reviews with the participating banks to co-create solutions for specific challenges in each area.

6. Recommendations

The Dutch Sustainable Growth Coalition offers the following recommendations to business leaders looking to create shared value through innovation.

1. Strategic guidance

Ensure that employees feel supported by the broader corporate strategy and purpose. They should know how their innovations help realise company goals. Without strategic guidance, employees looking to build a business case cannot substantiate why their initiatives align with the company's broader purpose. For step-by-step information on how to provide such strategic guidance, please refer to the second DSGC publication entitled "Leadership and Corporate Governance for Sustainable Growth Business Models".

2. Partnerships and collaboration

Make partnerships and collaboration common practice. Success is usually not achieved in isolation, but in collaboration with a variety of internal and external partners. In some cases, the DSGC companies work together with NGOs or governments. In various cases, especially involving innovations where a product or service is (re)conceived, (prospective) customers are involved in the development process right from the start.

3. Cross-functional teams

Build successful teams that represent a mix of professionals with different backgrounds. For example, in various value chain innovations presented in the case studies of this publication, professionals with sourcing or procurement backgrounds collaborate with professionals with more technical or sustainability backgrounds. In several innovations where a product or service is (re)invented, business development, marketing or sales professionals often work together closely with their R&D or innovation colleagues. The leading role need not be taken by corporate sustainability professionals from the company's headquarters; often, functional leaders are best positioned to drive progress and coordinate the effort.

4. Scale

Keep in mind that scalability is a key condition for realising large-scale impact. In order for sustainable innovations to be scalable, financial and non-financial benefits have to be mutually reinforcing. The net costs of every innovation presented in this publication should, in principle, not increase (but preferably go down) if the innovation were scaled up. This is what distinguishes a sustainable innovation from traditional "social responsibility" initiatives of a more philanthropic nature.

5. Broader business horizon

Instead of focusing only on the direct environmental or social impact of your (suppliers') operations, extend your focus to include benefits enjoyed by (end) users of your product or service. When engaging your customers, clearly communicate about the benefits they will enjoy as a result of your sustainable innovation. Your sustainability performance is defined by the value created by your company's products or services throughout their entire lifecycle.

6. Stakeholder engagement and education

Identify societal challenges that relate to the expertise of the company. The only way to stay in tune with changing world trends and needs is to take an "outside-in" approach. A sustainable and innovative strategy can only be created through an extensive study and consultations with everyone in and beyond value chains. At a local level, field research to understand the local context and culture might be crucial for success. In some cases, education might be necessary, as customers and other stakeholders might not be aware of the urgency of the problem that your sustainable product or service is looking to resolve in the first place.

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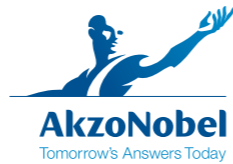
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Appendix 1:

Company Overviews



In a nutshell

AkzoNobel is a leading global paints and coatings company and a major producer of specialty chemicals. The company operates in more than 80 countries and supplies industries and consumers with innovative products and services. AkzoNobel employs 50,000 people.

Strategy

To achieve its vision, AkzoNobel has a strong focus on four key end-user segments. This focus enables the company to get closer to its customers and be much more responsive to the dynamics of the markets in which it operates. A common feature in those segments is that resource scarcity (energy and raw materials) will drive major changes. Achieving longer-term business success for AkzoNobel and its business partners relies on the ability to get the greatest positive impact out of products and services, from the fewest resources possible. This will contribute to cost savings and will generate revenue growth for AkzoNobel and for its business partners across the entire value chain.

AkzoNobel has formulated its Planet Possible strategy. Key elements are:

1. Sustainable business solutions: Increase revenue from downstream eco-premium solutions (that generate direct resource and energy benefits for customers, consumers and end users) to 20% of total revenue by 2020.
2. Resource efficiency: More efficient resource and energy use across the entire value chain by 2020 (measured by carbon footprint reduction).
3. Report on the Resource Efficiency Index as of 2014. A new indicator measures how efficiently AkzoNobel generates value (expressed as gross margin divided by cradle-to-grave carbon footprint).

Governance structure

- ▶ **Executive Directors:** AkzoNobel's Sustainability Council is chaired by the CEO and includes Executive Committee representatives, business unit Managing Directors and corporate staff directors. The Council advises the Executive Committee on strategy development, monitors the integration of sustainability into management processes and oversees the company's sustainability targets and overall performance.
- ▶ **Leading governance body:** The Corporate Director for Sustainability and HSE reports directly to the CEO. This function leads a small team, including an expert group focusing on life-cycle and sustainability assessments.
- ▶ **Non-Executive Directors:** The Supervisory Board reviews progress on sustainability strategy biannually.

Transparency and reporting

AkzoNobel publishes an integrated report with GRI B+ status (self-declared). The company was awarded the Dutch Henri Sijthoff Prize for the best integrated Annual Report in the Netherlands in the AEX companies' category (reporting year 2010). AkzoNobel was the Materials Industry Group Leader in the 2014 Dow Jones Sustainability Index, in which it has had a Top 3 position for nine consecutive years.

Innovations enablement

Innovation at AkzoNobel is closely aligned with the company's emphasis on customers, market trends and sustainability. Attention is directed at creating eco-premium solutions with clearly discernable sustainability benefits for customers, end users and end-of-life management. To this end, research is focused on more sustainable raw materials, reduced and zero-VOC coatings and paints, differentiated performance and less impacting manufacturing processes. Open innovation is actively used to accelerate innovation efforts and stimulate co-operation with third parties offering new ideas and potential solutions. To this end, AkzoNobel operates an internet-based 'Open Space' platform.



In a nutshell

Royal DSM is a global science-based company active in the health, nutrition and materials industry. By connecting its unique competences in Life Sciences and Materials Sciences, DSM is driving economic prosperity, environmental progress and social advances to create sustainable value for all stakeholders.

Strategy

DSM has identified four strategic growth drivers: High-Growth Economies, Innovation, Sustainability and Acquisitions & Partnerships. With regard to Sustainability, DSM focuses on developing and providing products and services that have better ecological performance over the life cycle (Eco+) and a more positive impact on people (People+) than competing products and services. This strategy drives DSM's innovation. The 'One DSM Culture Agenda' further embeds sustainability into the organisation. This program aims to connect business organisations, regional organisations, functional excellence groups and shared services and is geared towards speeding up execution to support this sustainable growth strategy. The change agenda focuses on building visible, inspirational leadership to guide DSM's mission and strategy.

Two of DSM's seven growth targets include sustainability and concern an increase in innovation-related revenue and revenue in Emerging Business Areas (including biomedical, bio-based products and services, and advanced surfaces). DSM has formulated specific Sustainability aspirations for the period 2011-2015:

- ▶ Dow Jones Sustainability Index Top ranking ("Gold")
- ▶ ECO+ (innovation pipeline), at least 80% of the pipeline being ECO+
- ▶ ECO+ (running business) from 34% to 50%
- ▶ Energy efficiency: 20% improvement between 2008 and 2020
- ▶ Greenhouse gas emissions: 25% reduction between 2008 and 2020
- ▶ Employee Engagement Survey: towards High Performance Norm
- ▶ Diversity and People+ program, a strategy for measurably improving people's lives

Governance structure

- ▶ **Executive Directors:** The CEO and Chairman of the Managing Board is the primary point of contact for sustainability. The entire Managing Board is involved in sustainability, with individual members chairing specific sustainability projects or areas.
- ▶ **Leading governance body:** Sustainability is organised in a functional network. This network is supported by the Corporate Sustainable Development department, which reports to the Company Secretary (Senior Vice President of Corporate Affairs). The latter, in turn, reports directly to the CEO and Chairman of the Managing Board.
- ▶ **Non-Executive Directors:** The Supervisory Board is structured in four sub-committees, one of which is the Corporate Social Responsibility Committee.

Transparency and reporting

DSM publishes an integrated annual report with GRI A+ status (self-declared). DSM received a special transparency award from the Dutch Ministry of Economic Affairs (Transparency Benchmark) for the way it reported on innovation in its integrated annual report 2012. Since 2004, DSM has four times ranked among the very top leaders in the sector and has six times held the worldwide sustainability leader position in the Dow Jones Sustainability Index for the Materials industry group.

Innovations enablement

Innovation is one of DSM's business growth drivers (see strategy and specific targets above). DSM distinguishes between R&D and innovation; where R&D turns money into knowledge, innovation is the process of creating business out of this knowledge. DSM has three Innovation centres. Innovations are researched by their Science Community (over 2,500 DSM employees globally, more than 10% of the workforce). The community actively connects to outside partners; in academia, institutions as well as with peer companies. The 'Open Innovation Funnel' is the guiding principle. To meet the challenges of a world with 9 billion people, via DSM Venturing, DSM also creates new growth platforms not (yet) within the scope of their current businesses through business incubators.



In a nutshell

FrieslandCampina is one of the world's five largest dairy companies. FrieslandCampina supplies consumer products such as dairy-based beverages, infant nutrition, cheese, butter, cream and desserts. Products are also supplied to restaurants, bakeries and catering companies. FrieslandCampina supplies ingredients and semi-finished products to manufacturers of infant & toddler nutrition, the food industry and the pharmaceutical sector around the world. FrieslandCampina has offices in 30 countries and employs around 20,000 people.

Strategy

FrieslandCampina has formulated a 'route2020 strategy' to achieve growth of the company and maximise the value of all the milk produced by the cooperative's member dairy farmers. FrieslandCampina strives to achieve the foreseen growth of its activities in a climate-neutral manner throughout the entire chain from cow to consumer. The company wants to achieve this by working together with member dairy farmers and chain partners on improving energy efficiency, reducing greenhouse gas emissions and stimulating the production of sustainable energy on dairy farms.

Two of the five strategic goals of FrieslandCampina involve areas related to sustainability: halving the number of job-related accidents within five years, and climate-neutral growth throughout the entire chain. The company's Corporate Social Responsibility strategy focuses on four priority areas:

1. Nutrition & Health: reduce the sugar, salt and fat contents of FrieslandCampina products; develop a company standard for labelling and consumer information; help combat undernourishment; and reach ten million children a year with effective information on healthy nutrition.
2. Efficient and sustainable production chains: reduce energy, water usage and waste water by 20% per kilo by 2020 (compared with 2010); 100% consumption of green electricity by 2020; and sustainable production of all raw materials purchased.
3. Dairy development in Asia and Africa: align dairy farms run by local dairy farmers with FrieslandCampina's worldwide Foqus planet quality standard; raise the annual family income of dairy farmers to well above the UN-specified poverty threshold; and increase productivity per cow in South-East Asia and Nigeria by 50% compared with 2011.
4. Sustainable dairy-farming: facilitate the climate-neutral growth of FrieslandCampina through the introduction of measures on member dairy farms; maintain the current level of meadow grazing on 75-80% of member dairy farms; improve the health and welfare of livestock on member dairy farms; and stimulate biodiversity.

Governance structure

- ▶ **Executive Directors:** The Corporate Social Responsibility (CSR) Board is chaired by the Chief Executive Officer.
- ▶ **Leading governance body:** The Corporate Sustainability Department and the CSR Board are responsible for the CSR policy. The latter consists of Directors and Managers of HR, Cooperative affairs, a regional director for Benelux, marketing, communications & sustainability, etc. Both entities are responsible for informing the Executive Board and the management of the business groups and operating companies. CSR is implemented throughout the entire organisation by the CSR Governance Board, the sustainability coordination team and four implementation teams.
- ▶ **Non-Executive Directors:** One member of the Supervisory Board is also a member of the CSR Board.

Transparency and reporting

FrieslandCampina's CSR report follows the guidelines of the Global Reporting Initiative and the criteria of the Transparency Benchmark of the Dutch Ministry of Economic Affairs.

Innovations enablement

Innovation is an important part of FrieslandCampina's route2020 strategy. FrieslandCampina has brought together its expertise in the fields of innovation and Research & Development in the Innovation Centre in Wageningen, the Netherlands. This is structured in four product development teams and five global expert teams that provide the product development teams with specialist knowledge. FrieslandCampina invests in working together with the next generation and specifically with the so-called "generation Y". In addition to its open-innovation programme, the company needs new and strong ideas from young colleagues and farmers. The company organises specific leadership challenges and has green teams at different plants that come up with new ideas on the connection of sustainability, value creation and leadership. In that way, FrieslandCampina uses its cooperative structure to share new insights and new ideas between its employees at the production sites and nearly 20,000 farmers.



In a nutshell

Established in 1864 by the Heineken family, HEINEKEN has a long history and heritage as an independent global brewer. HEINEKEN brews quality beers and builds award-winning brands. Its portfolio comprises a total of over 250 international, regional, local and specialty beers and ciders. HEINEKEN is the world's most international brewer - the Heineken® brand is present in almost every country around the globe and over 165 breweries have 85,000 employees in more than 70 countries.

Strategy

HEINEKEN is driven by six business priorities: 1. Grow the Heineken® brand; 2. Consumer inspired, customer oriented and brand led; 3. capture the opportunities in emerging markets; 4. leverage the benefits of HEINEKEN's global scale; 5. drive personal leadership; and 6. embed and integrate sustainability.

Sustainability is an integral part of the company's strategy alongside other commercial and business imperatives, and focuses around ambitious objectives by 2020:

1. Protecting water resources: reduce specific water consumption in the breweries by 25% and compensate/balance water used by production units in water-scarce and distressed areas.
2. Reducing CO₂ emissions: reduce CO₂ emissions in production by 40%, reduce CO₂ emissions of fridges by 50% and reduce CO₂ emissions in distribution by 20% in Europe and the Americas.
3. Sourcing sustainably: procure at least 50% of main raw materials from sustainable sources, procure 60% of raw materials in Africa through local sourcing and ensure ongoing compliance with the Supplier Code Procedure.
4. Advocating responsible consumption: make responsible consumption aspirational by leveraging the Heineken® brand, ensure that every market in scope has a measurable partnership in place, aimed at addressing alcohol abuse, and reports publicly on it, and deliver global industry commitments.

Governance structure

- ▶ **Executive Directors:** The CEO chairs the Corporate Affairs Committee, which is the steering body for CSR strategy and projects. Other executives in that committee are the Chief Corporate Relations Officer, the Regional President Americas, the Chief Supply Chain Officer, the Chief Marketing Officer and Regional President Western Europe.
- ▶ **Leading governance body:** On a daily basis, CSR is governed by a team of representatives from the Supply Chain, Global Marketing, HR, Corporate Relations and Procurement

functions. The team is chaired by the Manager Global Sustainable Development. Progress is a recurring item on the Executive Committee's agenda and that of every management team in HEINEKEN's operating companies. Specific plans have been developed for each market, aimed at achieving the "Brewing a Better Future" goals.

- ▶ **Non-Executive Directors:** In compliance with the Dutch Corporate Governance Code, the Supervisory Board discusses sustainability at least once a year.

Transparency and reporting

HEINEKEN publishes a global sustainability report, fulfilling the requirements of GRI Application Level B+. In 2013, 39 local sustainability reports were published. The company aims for all its operating companies to issue their own local sustainability reports by 2015. Since 2011, HEINEKEN has participated in the Investors Carbon Disclosure Project (CDP). In 2014, the company achieved a disclosure score of 99 points, with an A performance rating. As a result, HEINEKEN was included in the A-List of CDP and leads its industry sector in the CDP Benelux Leadership Index. As a result, HEINEKEN leads its industry sector in the CDP Benelux Leadership Index.

Innovations enablement

Innovation is a core enabler in driving HEINEKEN's top-line growth and sustainability performance. Innovation keeps the company's category exciting and appealing for its consumers, allowing HEINEKEN to ignite conversations and continue to surprise and delight its consumers through brands whilst also making production processes and products more sustainable. HEINEKEN has a 6% innovation rate for the coming years, meaning that 6% of its sales will derive from new innovations. Innovation remains a key strategic focus area for HEINEKEN to support sustainable value growth. In 2013, HEINEKEN reached a 5.9% innovation rate (compared to 5.3% in 2012), which means that innovation contributed to EUR 1.1 billion of revenues. The higher rate of innovation reflects both local innovations and the accelerated roll-out of global innovations. HEINEKEN tests all new innovations against sustainability criteria using an EcoDesign methodology. HEINEKEN is rolling out energy and water saving best practices in all markets, combined with specific local targets for each operating company.



In a nutshell

AIR FRANCE KLM is a global leader in air transport. It comprises a single holding company and two airlines, Air France and KLM, each of which retains its own brand and identity. Its three main businesses are passenger transport, cargo transport and aviation maintenance services. KLM employs 32,000 people. Together with AIR FRANCE, the company employs more than 100,000 people. The company operates in 103 countries.

Strategy

AIR FRANCE KLM launched the 'Transform 2015 plan', a three-year transformation plan (2012-2014) to achieve cost reductions, regain competitiveness and ensure that its products and customer services are leading worldwide. The plan applies to all of the Group's businesses: passenger transportation, cargo transportation and aeronautics maintenance. The Group will further invest in offering innovative products and services which are adapted to evolving customer needs. The plan involves the development of strategic partnerships and further extends the company's long-distance network. It also includes a sustainable development policy based on respect of its commitments to environmental advances and social progress. By implementing new working conditions and action plans, the Group's employees can play their part in achieving the transformation.

The sustainability policy as part of overall strategy is integrated into the company's decision-making process and execution. AIR FRANCE KLM aims to set the standard in CSR and to remain frontrunner in the airline industry. As such, KLM aspires to be the most sustainable airline and therefore formulated a long term vision and ambitions for 2020. This vision is built on three pillars:

- ▶ Building a motivated workforce in a safe and healthy environment, with good labour conditions and by stimulating diverse teams
 - ▶ Lowering its environmental impact and increasing social impact in the supply chain, using sustainable resources and materials
 - ▶ Creating opportunities for future generations
- To achieve this, the following objectives are in place:
- ▶ Energy: 20% CO₂ reduction per ton/kilometre in 2020, compared to 2009
 - ▶ Sustainable catering: 100% sustainable inflight catering products (on flights departing from Amsterdam)
 - ▶ Waste: 100% recycling and recovery
 - ▶ Employees: providing a healthy and motivating work environment

- ▶ Communities: all areas have a program in place positively impacting future generations

Governance structure

- ▶ **Executive Directors:** CSR management is guaranteed at board level.
- ▶ **Leading governance body:** The CSR department is responsible for policy and deployment in the organisation, from senior management priorities to implementation through unit action plans. A CSR Council has been established at KLM Executive level, which meets every quarter. This Council, which is made up of several executives and senior managers, advises the Board of Directors and Executive Committee on CSR policy.
- ▶ **Non-Executive Directors:** The Supervisory Board, alongside the Board of Directors, approves the strategic orientation and CSR policy and ensures implementation.

Transparency and reporting

AIR FRANCE KLM publishes a CSR report with A status (GRI checked). In 2014, AIR FRANCE KLM succeeded in retaining its leading position on the Dow Jones Sustainability Index (DJSI). It ranked first in the transport sector for the sixth time, and headed the Airlines rankings for the tenth consecutive year.

Innovations enablement

KLM develops and integrates innovation across the entire company. Every division has its own innovation budget. New projects are implemented independently. In commercial business divisions, such as Passenger business, projects are deployed to make passenger processes more efficient, while the Engineering & Maintenance focuses on optimising the maintenance of airplanes. Corporate departments such as CSR and Innovation have an advising role and ensure the internal dissemination of best practices and lessons learnt. KLM is also involved in open innovation with external parties. For example, KLM partners with the Delft University of Technology, Schiphol and Rabobank in the Mainport Innovation Fund (MIF). This strategic partnership aims to invest venture capital in promising technology companies with breakthrough innovations that make the aviation sector more sustainable, safer and more efficient. Through the MIF, KLM invested in 6 promising start-ups in 2013.

In a nutshell

Royal Philips is a diversified health and well-being company, focused on improving people's lives through meaningful innovation in the areas of Healthcare, Consumer Lifestyle and Lighting. Headquartered in the Netherlands, Philips posted 2013 sales of EUR 23.3 billion and employs approximately 115,000 employees with sales and services in more than 100 countries.

Strategy

Philips' strategy is to strengthen its existing leadership positions while expanding promising businesses to become leaders in the healthcare, lighting and consumer lifestyle markets. This strategy is supported by a continued focus on emerging markets and a commitment to being a leading company in matters of sustainability.

Philips takes a two-dimensional approach - social and ecological - to improving people's lives. The social dimension consists of products and solutions that directly support the curative (care) or preventive (well-being) side of people's health. The ecological dimension is determined by the company's Green Product portfolio, such as energy-efficient lighting, in order to realise healthy ecosystems that are needed for people to live a healthy life.

The main elements of the EcoVision program are:

- ▶ Improving people's lives
- ▶ Green Product sales
- ▶ Green Innovation, including Circular Economy
- ▶ Green Operations
- ▶ Health & Safety
- ▶ Supplier Sustainability

Governance structure

- ▶ **Executive Directors:** The Philips Executive Committee is advised by the Sustainability Board that meets quarterly. This is chaired by the Chief Strategy and Innovation Officer, Executive Vice-President and a member of the Executive Committee. Other members of the Sustainability Board include three other members of the Executive Committee, business representatives and the global heads of Brand Communication & Digital and Sustainability.
- ▶ **Leading governance body:** The global head of Group Sustainability reports to the chair of the Sustainability Board. Group Sustainability is responsible for trend analysis, strategy, policy and action plan development, as well as internal and external reporting, and has a cross-functional leadership role for the global sustainability network in sectors, functions and markets.

- ▶ **Non-Executive Directors:** The Supervisory Board reviews the sustainability program annually.

Transparency and reporting

Philips publishes an integrated report according to GRI's G4 standards providing reasonable assurance for all reported results (including both financial and non-financial information). The company uses dedicated reporting tools on the various EcoVision targets. In the Dow Jones Sustainability Index, Philips was Super Sector Leader in the Personal and Household Goods category in 2011 and 2012. Since 2013, Philips has been ranked in the Industrial Conglomerates category of the DJSI. In 2013, Philips received the Crystal Award ("De Kristalprijs"), an award for the most transparent annual report in the Netherlands.

Innovations enablement

In 2013, Philips invested 7.4% of sales in research and development. Philips Group Innovation (PGI) feeds the innovation pipeline, enabling the Philips operating businesses to create new business options through new technologies, business creation, and intellectual property development. PGI encompasses Research, Innovation Services, the Philips Innovation Campus in Bangalore and Nairobi, the Philips Innovation Centre Shanghai, Philips Design, the Philips Healthcare Incubator as well as Emerging Business Areas. PGI invested EUR 27 million in Green Innovations in 2013, and has a strong focus on global challenges like water, energy, food and access to affordable healthcare. PGI deployed the Sustainable Innovations Assessment tool in which innovation projects are mapped, categorised and scored along the environmental and social dimension. PGI actively participates in open innovation through relationships with academic and industrial partners, as well as via European and regional projects.



In a nutshell

Shell is a global group of energy and petrochemical companies employing 92,000 people in more than 70 countries. Shell's aim is to help meet the energy needs of society in ways that are economically, environmentally and socially responsible.

Strategy

Shell strategy seeks to reinforce its position as a leader in the oil and gas industry while helping to meet global energy demand in a responsible way. Shell focuses on a series of strategic themes, each requiring distinctive technologies and risk management: downstream engine, upstream engine, integrated gas, deep water, resources plays and future opportunities.

Meeting the growing demand for energy worldwide in ways that minimise environmental and social impact is a major challenge for the global energy industry. Shell aims to improve energy efficiency in its own operations by supporting customers in managing their energy demands and by researching and developing technologies that increase efficiency and reduce emissions in liquids and natural gas production. Shell believes fossil fuels will continue to provide the bulk of energy supply, while cleaner-burning natural gas will play an increasingly greater role as a complementary to wind and solar energy. Renewable energy, including low-carbon biofuels for transport, will also increase steadily.

Shell sets objectives and targets within its individual business units as the most effective way to drive sustainability performance improvements across the company. The company strives for continuous improvement in all activities. Sustainability measures account for 20% of the company's annual performance scorecard. Shell aims to have zero fatalities or leaks, and no incidents that harm people. These targets form its Goal Zero approach. Shell integrates human rights into the Shell General Business Principles and Code of Conduct, which govern the way the company does business worldwide.

Governance structure

- **Executive Directors:** The Chief Executive Officer (CEO) and the Executive Committee hold overall accountability for sustainable development. They set priorities and standards in sustainable development that shape business activities.
- **Leading governance body:** The CEO chairs the Health, Safety, Security, Environment and Social Performance (HSSE & SP) Executive, which reviews and assesses how sustainability performance is managed. Each business is responsible for complying with environmental and social

requirements and achieving specific targets.

- **Non-Executive Directors:** Shell's Corporate and Social Responsibility Committee assesses the company's policies and performance with respect to its Business Principles (which include sustainable development), Code of Conduct and HSSE (Health, Safety, Security & Environment) & SP (Social Performance) standards. The Committee consists of four Non-Executive Directors and meets quarterly.

Transparency and reporting

Shell publishes a sustainability report according to GRI 3.1 guidelines with A+ status (GRI-checked). The company has reported voluntarily on its environmental and social performance since 1997. Reporting is in accordance with oil and gas industry guidelines developed by the International Petroleum Industry Environmental Conservation Association (IPIECA), the American Petroleum Institute (API) and the International Association of Oil & Gas Producers (OGP). Shell has been included in the FTSE4Good Index since it started in 2001. Shell invited an external review committee to assess its sustainability reporting for the ninth successive year.

Innovations enablement

Innovation and the development of advanced technologies are central to Shell strategy. Shell's research and development programme includes technologies to manage carbon dioxide emissions and make alternative sources of energy commercially available. To drive forward the innovation that the future needs, Shell relies on a global network of technical centres close to its main markets and production sites. Shell's technical and engineering staff is 45,000 strong, of whom more than 1,000 hold PhDs. Shell's inventions over the years have entitled the company to more than 21,500 patents that are still in force.

People outside of Shell are encouraged to come to Shell with their innovative ideas. Shell's GameChanger programme identifies and helps develop ideas that could have an impact on the future of energy. This includes finding ways to produce energy from cleaner sources. GameChanger offers financial support and expertise to take ideas through to testing.

Both MIT's Technology Review and Thomson Reuters recently put Shell on their respective lists of the world's most innovative companies.



In a nutshell

Unilever is one of the world's leading suppliers of fast-moving consumer goods with operations in over 100 countries and sales in 190 countries. The company employs more than 174,000 people.

Strategy

Embedded in its 'Unilever Sustainable Living Plan', Unilever has three goals to achieve by 2020:

1. Help more than 1 billion people improve their health and well-being.
2. Halve the environmental footprint of Unilever's products.
3. Source 100% of the company's agricultural raw materials sustainably and enhance the livelihoods of people across its value chain.

Underpinning these goals are nine commitments supported by targets spanning our social, environmental and economic performance. For each of these targets, Unilever has established objective measurement techniques, including appropriate estimates and assumptions. Unilever has set a bold ambition to achieve change within its own company - through its brands, innovation, sourcing and operations.

Unilever believes that what's really needed are changes to the broader systems of which we are all a part - whether that is in food, energy or health. Unilever has decided to deepen its efforts in three areas where it has scale, influence and resources to create 'transformational change'. These areas are:

1. Working to eliminate deforestation from supply chains
2. Championing sustainable agriculture and the development of smallholder farmers
3. Improving hygiene through hand washing, safe drinking water and sanitation.

Governance structure

- **Executive Directors:** The Unilever Sustainable Living Plan is the full responsibility of the Unilever Leadership Executive (ULE). The Chief Executive Officer leads the ULE's quarterly monitoring of progress against targets and is in charge of strategic direction setting. The Unilever Sustainable Living Plan Steering Team is led by the Chief Marketing & Communication Officer and consists of the leaders of the categories (ULE members), R&D (ULE member), procurement, the Chief Sustainability Officer and representatives from finance, HR, legal, customer development and communications.
- **Leading governance body:** A Chief Sustainability Officer (Senior Vice President), supported by a central Sustainable Business team, supports the USLP Steering Team.
- **Non-Executive Directors:** Unilever's Corporate Responsibility Committee comprises three of the Board's non-executive directors. It oversees Unilever's role as a corporate citizen and reviews progress. As part of its remit to review risk, the Board's Audit Committee oversees the independent assurance program of the USLP. In addition, the Unilever Sustainable Development Group of external corporate responsibility and sustainability specialists advises on the USLP.

Transparency and reporting

Unilever issues progress reports on the milestones as set out in its Unilever Sustainable Living Plan. The third report, the Unilever Sustainable Living Plan Progress Report 2013, was published in April 2014, with GRI status B+. Dow Jones Sustainability Index: in 2014, it was the leader in the Food Producers sector for the fifteenth time.

Innovations enablement

The R&D function at Unilever employs over 6,000 professionals located in 20 countries. Research is carried out at six laboratories in the US, UK, the Netherlands, India and China. Project teams also partner with university academics and specialist companies. More than half of Unilever's 'pipeline' of innovations utilises open innovation. Development is carried out at 31 Global Development Centres and over 90 Regional Development Centres, where breakthrough technologies from research are optimised for launch. Regional teams are then responsible for launching the product into their region. At every stage in the process, the R&D teams collaborate closely with colleagues in the marketing and supply chain departments. Unilever is initiator of Sustainable Living Young Entrepreneurs Awards, an international program designed to inspire young people to find innovative, tangible and entrepreneurial solutions to tackle environmental, social and health issues.

Appendix 2: United Nations Millennium Development Goals

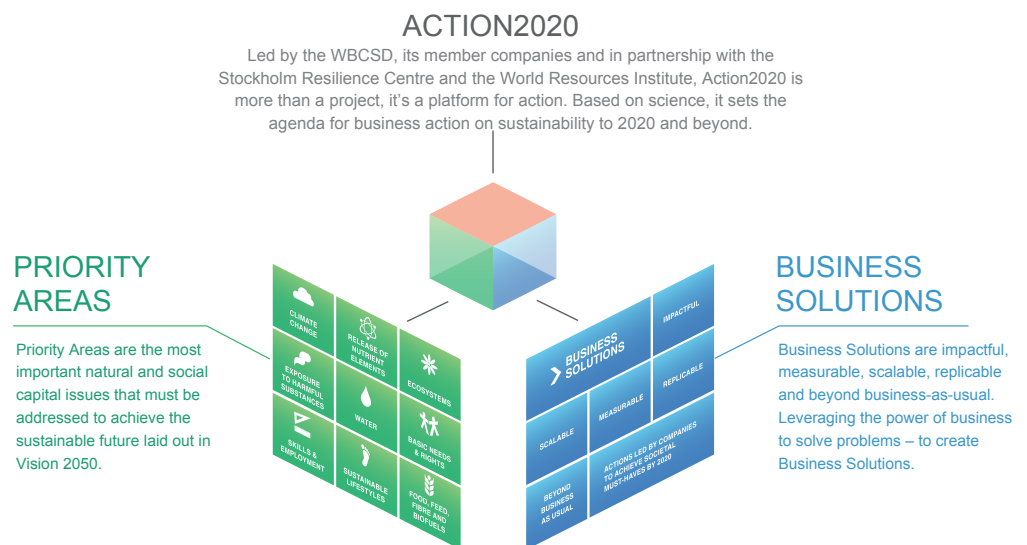
In September 2000, world leaders came together at United Nations Headquarters in New York to adopt the United Nations Millennium Declaration, which outlined and committed nations to a series of time-bound targets that have become known as the Millennium Development Goals. The agreement built on a decade of UN summits and conferences. Over the past decade, significant progress has been made in various areas, including poverty reduction, access to improved sources of drinking water, child death rates and deaths from malaria and tuberculosis. However, the framework designed to guide the international development efforts is due to expire in 2015. Therefore, the global community is currently discussing a post-2015 framework, including a new set of global development goals (the “Sustainable Development Goals”, or SDGs).



Appendix 3: WBCSD Action 2020 framework

The World Business Council for Sustainable Development (WBCSD) has engaged extensively with the scientific community to identify 9 priority areas for action, to be realised by 2020. The WBCSD companies identified preliminary business solutions which require sustainable innovation in order to reach these targets. These solutions should be “impactful, scalable, replicable and beyond business-as-usual”. The innovations presented in chapter 4 and 5 of this publication meet these criteria. Various innovations contribute directly to the priority areas and business solutions identified by the WBCSD. For example:

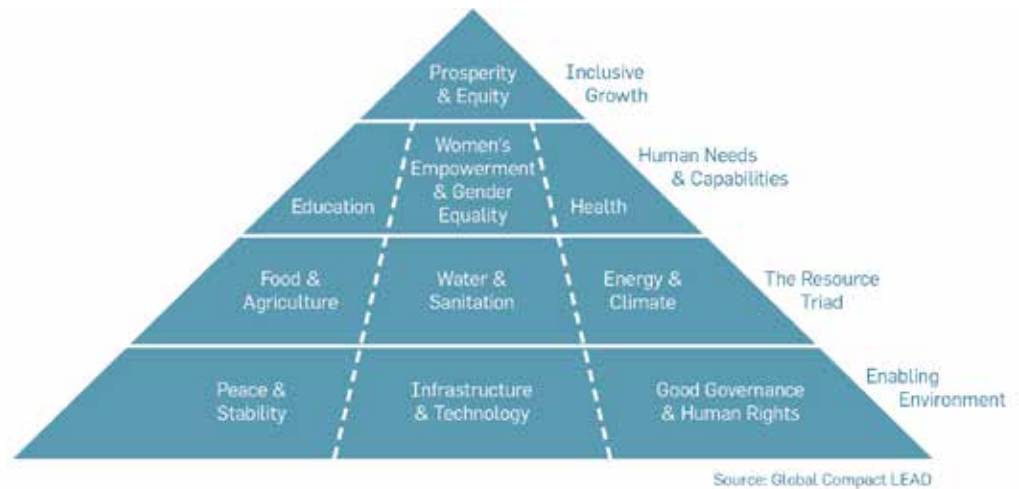
- ▶ the Shell case in chapter 4 applies the business solution “carbon capture and storage”
- ▶ the HEINEKEN case in chapter 5 (local sourcing of packaging in Haiti) is an example of “inclusive business models” ;
- ▶ the Unilever case on Lifebuoy soap in chapter 5 contributes greatly to the business solution “water, sanitation and hygiene” , while the case on the Tropical Forest Alliance in chapter 4 is an Action 2020 business solution in itself. employment.
- ▶ the business solution “growth platforms for smallholder farmers” is illustrated by the FrieslandCampina case in chapter 5;
- ▶ the KLM case on creating a market for biofuels in the aviation industry in the previous two DSGC publications directly help to tackle climate change;
- ▶ the Philips case on bringing solar LED light to off-grid consumers is an example of the business solution “low carbon electrification of remote locations”;
- ▶ the AkzoNobel and DSM innovations illustrated in chapter 5, fighting malnutrition, contribute to the Action 2020 priority area “basic needs and rights”.



Appendix 4: UN Global Compact proposed post-2015 issue area priorities

In a globe-spanning series of consultations, thousands of UN Global Compact participants provided input on global development priorities they consider central to any future development agenda. The visual on the right side reflects a series of highly focused discussions, which identified recommendations on issue prioritisation and framed themes into four over-arching categories: inclusive growth, human needs and capabilities, the resource triad, and an enabling environment. The overlap between Action 2020 (as exhibited in Appendix 3) and the UNGC post-2015 issue area priorities emphasises the potential of business to make a significant contribution. The organisation's Post-2015 Business Engagement Architecture launched by the UN Secretary General in September 2013 presents a useful framework for engaging global business on sustainable development.

The UN Global Compact is a strategic policy initiative for businesses that are committed to aligning their operations and strategies with ten universally accepted principles in the areas of human rights, labour, environment and anti-corruption. Endorsed by chief executives, the UN Global Compact is a practical framework for the development, implementation, and disclosure of sustainability policies and practices. This offers participants a wide spectrum of work streams, management tools and resources – which are designed to help advance sustainable business models and markets.



PROPOSED POST-2015 ISSUE AREA PRIORITIES

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