

SDG INDUSTRY MATRIX



Energy, Natural Resources & Chemicals

New Sustainable Development Goals to make our world more:
Prosperous • Inclusive • Sustainable • Resilient

Produced jointly by:



United Nations
Global Compact

and





NEW GLOBAL GOALS FOR SUSTAINABLE DEVELOPMENT



In September 2015, 193 member States of the United Nations met in New York to adopt 17 new Sustainable Development Goals ('SDGs') to make our world more prosperous, inclusive, sustainable and resilient.



GLOBAL GOALS 2015 - 2030

The SDGs are an ambitious plan of action for people, planet and prosperity. They are universal, applying to all nations and people, seeking to tackle inequality and leave nobody behind. They are wide ranging including ending poverty and hunger, ensuring sustainable consumption and production, and promoting peaceful and inclusive societies.

The agreement on a new sustainable development agenda expresses a consensus by Governments that the SDGs can only be achieved with involvement of the private sector working alongside Governments, Parliaments, the UN system and other international institutions, local authorities, civil society, the scientific and academic community – and all people. Hence, Governments in the Post-2015 declaration “...call on all businesses to apply their creativity and innovation to solving sustainable development challenges”.

Each and every SDG provides an opportunity for business and two are worth highlighting as cross-cutting themes:

- SDG 12 focuses on production and consumption and includes a specific target on “adopting sustainable business practices and reporting”;
- SDG 17 includes two targets on multi-stakeholder partnerships to ensure this attracts sufficient focus.





SUSTAINABLE DEVELOPMENT GOALS

1 NO POVERTY 	2 ZERO HUNGER 	3 GOOD HEALTH AND WELL-BEING 	4 QUALITY EDUCATION 	5 GENDER EQUALITY 	6 CLEAN WATER AND SANITATION
7 AFFORDABLE AND CLEAN ENERGY 	8 DECENT WORK AND ECONOMIC GROWTH 	9 INDUSTRY, INNOVATION AND INFRASTRUCTURE 	10 REDUCED INEQUALITIES 	11 SUSTAINABLE CITIES AND COMMUNITIES 	12 RESPONSIBLE CONSUMPTION AND PRODUCTION
13 CLIMATE ACTION 	14 LIFE BELOW WATER 	15 LIFE ON LAND 	16 PEACE, JUSTICE AND STRONG INSTITUTIONS 	17 PARTNERSHIPS FOR THE GOALS 	 SUSTAINABLE DEVELOPMENT GOALS

CONTENTS

SDG INDUSTRY MATRIX	5
ENERGY, NATURAL RESOURCES & CHEMICALS INDUSTRY HIGHLIGHTS	7
Opportunities for shared value	8
Good practice principles and initiatives	10
Multi-stakeholder partnerships and collaborations	13
SDG INDUSTRY MATRIX FOR ENERGY, NATURAL RESOURCES & CHEMICALS	16
SDG 1 End poverty in all its forms everywhere	17
SDG 2 End hunger, achieve food security and improved nutrition and promote sustainable agriculture	19
SDG 3 Ensure healthy lives and promote well-being for all at all ages	22
SDG 4 Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all	24
SDG 5 Achieve gender equality and empower all women and girls	26
SDG 6 Ensure availability and sustainable management of water and sanitation for all	28
SDG 7 Ensure access to affordable, reliable, sustainable and modern energy for all	30
SDG 8 Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all	34
SDG 9 Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation	36
SDG 10 Reduce inequality within and among countries	38
SDG 11 Make cities and human settlements inclusive, safe, resilient and sustainable	40
SDG 12 Ensure sustainable consumption and production patterns	42
SDG 13 Take urgent action to combat climate change and its impacts	45
SDG 14 Conserve and sustainably use the oceans, seas and marine resources for sustainable development	48
SDG 15 Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss	50
SDG 16 Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels	52
SDG 17 Strengthen the means of implementation and revitalize the global partnership for sustainable development	54
KEY CONTRIBUTORS	56

SDG INDUSTRY MATRIX

A

PURPOSE

The SDG Industry Matrix aims to inspire and inform greater private sector action to drive inclusive, sustainable prosperity.

Recognising that the opportunities vary by industry, the Matrix provides industry specific ideas for action and industry specific practical examples for each relevant SDG. It profiles opportunities which companies expect to create value for shareholders as well as for society.

The SDG Industry Matrix has been jointly conceived and led by the United Nations Global Compact and KPMG International Cooperative ('KPMG') to convert the interest stimulated by the Sustainable Development Goals into strategic industry activities which grow in scale and impact. This could be through sparking new innovative approaches, prompting companies to replicate successful activities in new markets, catalysing new collaborations and increasing participation in existing collaborations.

B

OPPORTUNITY

Through the lens of "shared value" the private sector can identify opportunity in addressing social and environmental challenges.

In the context of the SDGs, "shared value" represents the coming together of market potential, societal demands and policy action to create a more sustainable and inclusive path to economic growth, prosperity, and well-being¹. The SDGs provide an opportunity for companies to create value for both their business and society through:

- Developing products, services, technologies and distribution channels to reach low-income consumers;
- Investing in supply chains which are ethical, inclusive, resource-efficient and resilient;

- Improving the skills, opportunities, well-being and hence productivity of employees, contractors and suppliers;
- Increasing investment in renewable energy and other infrastructure projects.

Several trends are making these opportunities more compelling:

- **Demographics:** The population in developing regions is projected to increase from 5.9 billion in 2013 to 8.2 billion in 2050 whilst the population of developed regions will remain around 1.3 billion people;
- **Income growth:** Between 2010 and 2020, the world's bottom 40% will nearly double their spending power from US\$3 trillion to US\$5.8 trillion;
- **Technology:** Rapid innovation is catalysing improved market analysis, knowledge sharing, product and service design, renewable energy sources, distribution models and operational efficiencies. Technology is also lowering market entry costs for non-traditional actors and start-ups with innovative 'disruptive' business models;
- **Collaborations:** Governments, businesses, international financial institutions, the United Nations, civil society and academia are developing new ways of working with each other in pursuit of compatible objectives.

1. 'Unlocking the Power of Partnership: A Framework for Effective Cross-Sector Collaboration', KPMG International

SDG INDUSTRY MATRIX (CONTINUED)

C

METHODOLOGY

The SDG Industry Matrix has been compiled through a participatory three step process:

1. KPMG and the United Nations Global Compact drew on their respective industry insights to populate a preliminary draft with examples and ideas for action;
2. The United Nations Global Compact circulated the draft to its network of private sector participants, business associations and UN agencies requesting them to submit further examples and ideas for action;
3. KPMG and the United Nations Global Compact co-convoked a multi-stakeholder working roundtable (one per industry, each in a different continent) to agree the final SDG Industry Matrix content, including the most significant opportunities to profile in the 'Industry Focus Highlights' section.

Opportunities for Shared Value which are applicable to all industries are in *italics*

D

SYNERGIES

The SDG Industry Matrix draws on the commitment that companies have already expressed to the UN Global Compact's ten principles.

The SDG Industry Matrix builds on the recognition that all companies, regardless of their size, sector or geographic footprint, have a responsibility to comply with all relevant legislation, uphold internationally recognized minimum standards and to respect universal human rights. The UN Global Compact website includes key tools and resources which can help companies meet their minimum responsibilities and guide them to take supportive actions beyond these minimum responsibilities to advance social and environmental goals.

The SDG Industry Matrix is also complemented by the SDG Compass (produced by the Global Reporting Initiative, the United Nations Global Compact and the World Business Council for Sustainable Development), which guides companies on defining strategic priorities, setting goals, assessing impacts and reporting.



ENERGY, NATURAL RESOURCES AND CHEMICALS INDUSTRY HIGHLIGHTS

This section profiles some of the most significant opportunities, partnerships and collaborations for the Energy, Natural Resources & Chemicals industry. The supporting Matrix provides additional ideas and examples submitted by companies.

(it is not intended to be an exhaustive list).

Opportunities for shared value

The biggest opportunities for shared value – i.e. where we see the coming together of market potential, societal demands and policy action - are grouped around the following themes:

ENERGY FOR ALL

Drive progress towards universal access to affordable, reliable and sustainable energy, as a key enabler for multiple Sustainable Development Goals:

- Collaborate with Governments and other stakeholders to **extend electricity grids** to underserved communities including fragile states.
- Provide **off-grid communities** with access to affordable renewable energy (e.g. through low-carbon micro-grids or low cost community solar systems).
- Develop **shared energy infrastructure** to provide underserved communities around mining and production sites with access to affordable energy.
- Explore innovative **financing and service models** (such as rented or leased home solar systems) which extend affordable modern energy access.
- **Share energy sector knowledge** with local governments and other stakeholders to help them overcome barriers to universal energy access and contribute to the development of innovative solutions and industry frameworks.
- Strive to ensure electricity grids and industrial control systems are **resilient to cyber, terror and other security threats** which could disrupt energy supply.

ZERO-CARBON ENERGY

In line with the Paris Agreement and in collaboration with Governments and other stakeholders, support the transition to net-zero carbon energy which includes a substantially higher share of renewable energy in the global energy mix and removal of fossil-fuel carbon emissions through carbon capture, storage and usage:

- Develop and scale **breakthrough technologies** to accelerate the transition to a substantially higher share of renewable energy (solar, wind, hydro, geothermal and biomass) in the global energy mix.
- Improve integration of renewables into **grids and electricity markets** (e.g. through adoption of smart grid technologies, improved forecasting and greater long distance transmission capability).
- Invest in non-renewable **low carbon energy sources**, such as nuclear, where appropriate and considered necessary to bridge the transition to a substantially higher share of renewable energy.
- Develop and scale advanced and **cleaner fossil-fuel technology**.
- Collaborate with industrial manufacturers to substantially increase the capacity and efficiency of **power storage** systems.
- Collaborate with the transportation industry and other stakeholders to increase the rate of transition to **electric vehicles** and other **low carbon transport fuels**.
- **Empower consumers** to make informed choices on the source of their energy.
- Develop improved methods of **carbon capture and storage**, including terrestrial carbon sinks such as forests together with other secure storage systems such as saline aquifers.
- Research and develop scalable **carbon capture and usage solutions** including innovations around production of cement, algae-based fuel and carbon fiber.
- Support **carbon trading** schemes and purchase carbon credits to offset emissions.
- Minimize new investments which could lock in high-carbon **energy infrastructure**.

Opportunities for shared value (CONTINUED)

SUSTAINABLE PRODUCTION

Develop and share scaleable systems to improve the resource efficiency and sustainability of production across the value chain, in order to reduce the environmental footprint of operations, while reducing cost:

- Reduce and then **eliminate routine flaring** in oil production.
- **Reduce methane** emissions along the gas value chain.
- Develop and implement improved processes to **reduce inputs** i.e. raw materials, water and nonrenewable minerals, etc.
- Source materials and raw inputs with lower **embedded energy**.
- **Minimize waste** and effluent resulting from production and improve **recycling and reuse** of outputs.
- **Invest in research and development** to expand the application and cost effectiveness of chemical bio-alternatives (e.g. to replace single use plastics).
- Set **robust internal sustainability and emission reduction targets** which link to remuneration.
- Develop and share **scalable systems** with measureable levers impacting sustainability, using local initiatives as proof points.
- Develop and scale new energy technologies, chemicals and production methods which **reduce contamination and air and water pollution**.
- Ensure mines and production facilities are **resilient to extreme climatic events**.

COMMUNITY DEVELOPMENT

Collaborate with Government, private sector and not-for-profit stakeholders to transform the socio-economic development of communities – especially those surrounding the company's operations - going beyond compliance, local content requirements and 'license to operate' to achieve 'license to lead' in healthy, flourishing communities:

- Through participatory planning with affected communities, Governments and other stakeholders, invest in local **social and economic development** priorities.
- In collaboration with other stakeholders, develop the capacity of local communities to more productively participate in the company's **workforce and supply chain**.
- Prioritize **transparency** and anti-bribery and corruption, aiming to minimize leakage of resources which could otherwise be available for communities and broader public spending priorities.
- Ensure supply chains are **free from conflict metals and minerals** and achieve certification that extracted metals and minerals are conflict free.
- Develop robust employee and community **health and wellness programs** which reduce and treat communicable and non-communicable diseases, particularly those with high prevalence in the industry including tuberculosis, HIV, malaria, respiratory and heart diseases, and mental illness.
- Share **health and safety innovations** and best practices with other industry stakeholders to minimize the risk of morbidity and mortality from hazardous chemicals, air pollution, road collisions, mine collapses and other industrial accidents.
- Find new applications for **chemical or renewable energy technologies** which improve healthcare provision in off-grid communities, including low-energy or solar powered medical devices and treatment facilities, as well as heat stable products.
- Promote and invest in vocational and university **STEM education** through partnerships with local universities and other educational facilities.

Good practice principles and initiatives

In addition to the UN Global Compact's ten principles in the areas of human rights, labor, the environment and anti-corruption, there are a number of good practice principles and initiatives which align with the ENRC industry's contribution to sustainable development. These include the following:

COLLABORATIVE STRATEGIES FOR IN-COUNTRY SHARED VALUE CREATION: FRAMEWORK FOR EXTRACTIVE PROJECTS

Launched in 2016, this OECD Framework is the outcome of an open, inclusive and constructive dialogue on harnessing non-renewable natural resources to build competitive, diversified and sustainable economies through public-private collaboration. It presents a practical guide on how host governments, extractives industries and civil society can work together in a structured and systematic way to enable in-country shared value creation and advance the 2030 Agenda for Sustainable Development. The Framework transcends sectoral boundaries and focuses on strategies to foster coherence, sequencing, and effective co-ordination for integrated policymaking, and suggests monitoring and evaluation mechanisms to assess progress and impact over time. The actionable steps are addressed to governments, industry, and civil society clearly articulating their respective roles for improved collaboration, mutual respect and accountability.

EXTRACTIVE INDUSTRY TRANSPARENCY INITIATIVE

EITI is a global standard to promote the open and accountable management of natural resources. It seeks to strengthen government and company systems, inform public debate, and promote understanding. In each implementing country it is supported by a coalition of governments, companies and civil society working together. The EITI Standard requires countries and companies to disclose information on the key steps in the governance of oil, gas and mining revenues including information on tax payments, licenses, contracts, production and other key elements around resource extraction. As at January 2017, there are 51 implementing countries and 90 major oil, gas and mining companies disclosing US\$2.1 trillion of revenues.

KIMBERLEY PROCESS CERTIFICATION SCHEME

The Kimberley Process is a joint government, industry and civil society initiative to stem the flow of conflict diamonds. The Kimberley Process Certification Scheme (KPCS) imposes extensive requirements on its members to enable them to certify shipments of rough diamonds as 'conflict-free' and prevent conflict diamonds from entering the legitimate trade. Under the terms of the KPCS, participating states must meet minimum requirements and must put in place national legislation and institutions; export, import and internal controls; and also commit to transparency and the exchange of statistical data. Participants can only legally trade with other participants who have also met the minimum requirements of the scheme, and international shipments of rough diamonds must be accompanied by a Kimberley Process certificate guaranteeing that they are conflict-free. As at November 2016, Kimberley Process participants represent 81 countries and members account for approximately 99.8% of the global production of rough diamonds.

Good practice principles and initiatives (CONTINUED)

DIAMOND DEVELOPMENT INITIATIVE

The DDI works to effect systemic change within the artisanal and small-scale mining sector by convening all interested parties in processes and projects that help turn precious stones and minerals into a source of sustainable community development. DDI's work complements regulatory efforts to favor positive socioeconomic outcomes for miners and their families in developing countries. The Maendeleo Diamond Standards certification system is a unique effort to support artisanal diamond miners and their communities and to ensure their inclusion in the broader process of promoting responsible supply chains. The Standards system has been implemented at artisanal mining sites across Sierra Leone and the Democratic Republic of Congo and expansion is anticipated across West Africa in 2017.

ITRI TIN SUPPLY CHAIN INITIATIVE

iTSCi is a joint industry program delivering on-the-ground traceability, due diligence and risk identification, supporting the marketing of minerals and enabling community projects for tin, tungsten and tantalum (3T) mining in four countries of the African Great Lakes region. iTSCi now supports the supply of '3T' minerals from over 1,500 mine sites across the region in accordance with recommendations of OECD Due Diligence Guidance for supply chain sourcing from conflict and high-risk areas. The program supports government tagging and enables traceability of each bag of minerals from sites across DRC, Rwanda, Burundi and Uganda that are regularly monitored for security issues and any potential serious human rights abuses. Data is collated by iTSCi and made available to smelters giving mine-to-metal traceability for downstream user audits. The work includes monitoring of due diligence, incident monitoring and auditing and, through achieving successful marketing of minerals, enables community projects to develop.

ALUMINUM STEWARDSHIP INITIATIVE

The ASI is a multi-stakeholder organization, launched in 2012, with the mission to foster responsible production, sourcing and stewardship of aluminum. It has developed two standards which will form the core of the ASI Certification program: ASI Performance Standard (Principles and Criteria launched December 2014) and ASI Chain of Custody Standard (under consultation). The ASI Assurance model is also under development. In November 2016 the International Aluminum Institute, the global association of aluminum producers, and the ASI signed a Memorandum of Understanding (MoU) to collaborate in their respective efforts to support continuous improvement in the performance of the global aluminum industry and the sustainable use and recycling of its products. Under the MoU they will share measurement, reporting and verification frameworks; selected industry data; and issues monitoring capabilities on greenhouse gas emissions, water and energy use, and waste and risk management.

ZERO ROUTINE FLARING BY 2030

This initiative, introduced by the World Bank, brings together governments, oil companies, and development institutions who recognize the current flaring situation (causing more than 300 million tons of carbon dioxide emissions) is unsustainable from a resource management and environmental perspective, and who agree to cooperate to eliminate routine flaring no later than 2030. Oil companies that endorse the Initiative will develop new oil fields they operate according to plans that incorporate sustainable utilization or conservation of the field's associated gas without routine flaring. Oil companies with routine flaring at existing oil fields they operate will seek to implement economically viable solutions to eliminate this legacy flaring as soon as possible, and no later than 2030.

Good practice principles and initiatives (CONTINUED)

CENTER FOR RESPONSIBLE SHALE DEVELOPMENT

CRSD is an alliance of energy producers and environmental organizations working together to demonstrate responsible stewardship of the environment and its resources. The alliance aims to keep communities healthy, the environment clean, and families safe by optimizing the net social benefit of shale gas development. Working with environmental and energy leaders, CRSD has created 15 forward thinking, high performance standards focused on air, climate, water, and waste — standards that often exceed state and federal requirements. Certification is based on these performance standards that were developed to reflect leading industry practices.

CROSS-SECTOR BIODIVERSITY INITIATIVE

The CSBI is a partnership between IPIECA (the global oil and gas industry association for environmental and social issues), the International Council on Mining and Metals (ICMM) and the Equator Principles Association to develop and share good practices related to biodiversity and ecosystem services in the extractive industries. The initiative supports the broader goals of innovative and transparent application of the mitigation hierarchy in relation to biodiversity and ecosystem services. It does this through developing tools and guidance, as well as providing a platform for the CSBI community and stakeholders to share good practices.

OIL AND GAS INDUSTRY GUIDANCE ON VOLUNTARY SUSTAINABILITY REPORTING

This IPIECA, American Petroleum Institute, and International Association of Oil and Gas Producers guidance outlines the benefits of sustainability reporting, and highlights the content of a typical oil and gas industry sustainability report. The Guidance can be used to report performance to different internal and external audiences in different ways—for activities in a single country, for large projects or for a single operation. It covers a range of sustainability issues relevant to the oil and gas industry, based on industry consensus, together with input from an independent panel of stakeholders with expertise in the sector and sustainability reporting. It is applicable across the entire spectrum of the oil and gas industry's activities, from extraction and transformation of natural resources to supply of energy and other essential products to customers globally.

REACHING FULL POTENTIAL

World Business Council for Sustainable Development (WBCSD) members in the Chemical Sector launched this project to further value chain collaboration and harmonized approaches to sustainability measurement, in order to trigger the move to a more sustainable world. It is focusing on:

- Life Cycle Metrics: Develop, agree and adopt harmonized methods for sustainability measurement and reporting so companies can compete on performance, not on methodology. This work will include guidance on avoided product-level GHG emissions, standardized Life Cycle Assessment, sector Key Performance Indicators, and social Life Cycle Analysis.
- Value Chain Cooperation: Engage with value chain partners to identify the key disruptors that will be faced by the sector in the areas of mobility, packaging, and buildings. This will guide the sector to develop solutions that will help to enable a sustainable future.

4R NUTRIENT STEWARDSHIP SYSTEM

The science-based 4R system identifies best management practices for growers that can significantly reduce environmental impacts from fertilizer use. 4R practices help minimize nutrient losses to air and water, replenish and protect soil quality, and can help minimize impacts on wildlife habitat — and they offer socio-economic benefits as well. Developed by the fertilizer industry worldwide, the 4R framework intends to provide the environment for efficient nutrient management focusing on four central components: applying the right fertilizer source, at the right rate, at the right time in the growing season, and in the right place.

PROGRAM FOR THE ENDORSEMENT OF FOREST CERTIFICATION

PEFC is an umbrella organization for the mutual recognition of national or regional forest certification schemes which meet internationally recognized requirements for sustainable forest management. PEFC includes forest certification, chain of custody and product labelling, and requires independent third-party verification. PEFC members are national or regional forest certification schemes based on inter-governmental processes for sustainable forest management around the world.

Multi-stakeholder partnerships and collaborations

The SDG Industry Matrix includes several examples of collaborations which advance sustainable development. Of these, some of the largest for ENRC include:

OIL AND GAS CLIMATE INITIATIVE

The Oil and Gas Climate Initiative is an industry-driven initiative which aims to catalyze practical action as part of a leading industry response to climate change. It is a CEO led organization, created in 2014 and currently comprising ten oil and gas companies which collectively produce over one-fifth of global oil and gas production. Its three working groups focus on developing a Low Emissions Roadmap; Carbon Capture, Utilization and Storage; and Managing Methane Emissions. In November 2016, OGCI launched OGCI Climate Investments, a partnership that will invest US\$1 billion over ten years to support start-ups and help develop and demonstrate innovative technologies that have the potential to significantly reduce greenhouse gas emissions.

CLIMATE AND CLEAN AIR COALITION OIL & GAS METHANE PARTNERSHIP

The Climate and Clean Air Coalition (CCAC) created this voluntary initiative to reduce methane emissions in the oil and gas sector. The CCAC officially launched the Partnership at the UN Secretary General's Climate Summit in New York in September 2014. The initiative currently has the following partner companies: BP, Eni, Pemex, PTT, Repsol, Southwestern Energy, Total and Statoil. The CCAC Oil & Gas Methane Partnership provides companies with a credible mechanism to systematically and responsibly address their methane emissions – and demonstrate this systematic approach and its results to stakeholders.

LOW CARBON TECHNOLOGY PARTNERSHIP INITIATIVE

The LCTPi is a unique, action-oriented program that brings together companies and partners to accelerate the development of low-carbon technology solutions to stay below the 2°C ceiling. This includes 9 focus areas: Forests as Carbon Sinks, Chemicals, Carbon Capture & Storage, Renewables, Low Carbon Transport Fuels, Cement, Low Carbon Freight, Climate Smart Agriculture, and Energy Efficiency in Buildings. Led by the World Business Council for Sustainable Development in partnership with the International Energy Agency and Sustainable Development Solutions Network, LCTPi has gathered over 150 global businesses with 70 partners to work collaboratively on these projects which, if implemented fully, could substantially impact global emissions.

PARTNERSHIP FOR CLEAN FUEL AND VEHICLES

The PCFV is a leading global public-private initiative promoting cleaner fuels and vehicles in developing and transition countries. The PCFV brings together 72 organizations representing developed and developing countries, the fuel and vehicle industries, civil society, and leading world experts on cleaner fuels and vehicles. PCFV partners combine their resources and efforts to achieve cleaner air and lower greenhouse gas emissions from road transport by applying fuel quality improvements and proven vehicle technologies in use in leading global auto markets.

BIOFUTURE PLATFORM

Launched in November 2016, this Platform aims to be an action-oriented, country-led, multi-stakeholder mechanism for policy dialogue and collaboration among leading countries, organizations, academia and the private sector conscious of the need to accelerate development and scale up deployment of modern sustainable low carbon alternatives to fossil based solutions in transport, chemicals, plastics and other sectors. The 20 founding country members pledged to promote international collaboration; facilitate an enabling environment for advanced low-carbon fuel and bioeconomy related investments; raising awareness and share analysis; promoting research and development; and discuss how to effectively evaluate, share and promote sustainable practices for the production of biomass and the entire value chain life cycles.

Multi-stakeholder partnerships and collaborations (CONTINUED)

ENERGY TRANSITIONS COMMISSION

The ETC was convened to help identify pathways for change in energy systems to ensure both better growth and a better climate. The commission aims to accelerate change towards low-carbon energy systems that enable robust economic development and limit the rise in global temperature to well below 2 degrees Celsius. The ETC will provide decision-makers with insights and options for action at local and sector level, based on objective research and wide engagement with actors in the energy system. Commissioners share a progressive attitude to reforming the energy system and they include incumbent energy companies, industry disruptors, investors, equipment suppliers, non-profit organizations, advisors, and academics.

SUSTAINABLE ENERGY FOR ALL

SEforALL empowers leaders to broker partnerships and unlock finance to achieve universal access to sustainable energy, as a contribution to a cleaner, just and prosperous world for all. SEforALL has three objectives: ensure universal access to modern energy services; double the global rate of improvement in energy efficiency; and double the share of renewable energy in the global energy mix. SEforALL uses a global, multi-stakeholder platform with a strong and structured relationship to the United Nations, to engage governments, companies, institutions, financiers, development banks, unions and communities, entrepreneurs and civil society.

INTERNATIONAL PETROLEUM INDUSTRY ENVIRONMENTAL CONSERVATION ASSOCIATION

IPIECA is a global association which shares and promotes good practice and knowledge to help the oil and gas industry improve its environmental and social performance. Its membership brings together 37 oil and gas companies (involving both upstream and downstream) and 16 associations accounting for 60% of the world's oil production. It is the industry's principal channel of communication with the United Nations. IPIECA's work addresses climate and energy; the environment; social responsibility; and reporting.

CARBON PRICING LEADERSHIP COALITION

This is a voluntary partnership of governments, businesses, and civil society organizations that agree to advance the carbon pricing agenda by working with each other towards the long-term objective of a carbon price applied throughout the global economy. The Coalition will collect the evidence base, benefiting from experience around the world in designing and using carbon pricing, and use this input to help inform successful carbon pricing policy development and use of carbon pricing in businesses. It will also deepen understanding of the business and economic case for carbon pricing.

INTERNATIONAL EMISSIONS TRADING ASSOCIATION

This non-profit business organization was created to establish a functional international framework for trading in greenhouse gas emission reductions. The Association's membership includes leading international companies from across the carbon trading cycle. IETA members seek to develop an emissions trading regime that results in real and verifiable greenhouse gas emission reductions, while balancing economic efficiency with environmental integrity and social equity. Strengthened by the momentum from COP 21 in Paris, IETA will advance emissions markets that price carbon effectively by: improving the credibility and functionality of today's carbon markets; promoting quality, efficiency and effectiveness in future carbon markets; providing leadership and development opportunities for carbon offsetting; promoting effective linkages between carbon pricing systems over time; supporting effective models of private sector engagement in climate finance; and showcasing the power of markets in addressing climate change.

PROTEUS PARTNERSHIP

Proteus is a unique collaboration between 14 leading extractive companies and UNEP-WCMC (United Nations Environment Programme and World Conservation Monitoring Centre) which provides companies with the biodiversity information needed for better informed decisions and supports the development and improvement of key global biodiversity resources. Proteus Partnership provides tools and information to help companies better understand and manage their global footprint on biodiversity whilst supporting the work of international conservation organizations in the improvement and dissemination of global biodiversity data.

Multi-stakeholder partnerships and collaborations (CONTINUED)

THE COALITION FOR ENERGY EFFICIENT COMMINUTION

CEEC was established by a broad range of mining sector companies keen to accelerate awareness and knowledge transfer and to drive improved energy and cost outcomes in the substantive area of comminution. Comminution is the process of grinding and crushing ore, on average the highest energy step in mining and also a significant proportion of site production costs. CEEC's mission is to raise awareness of research findings, alternative comminution strategies and installed outcomes, thereby improving environmental impacts, while lowering processing costs and raising shareholder value as a result of improved comminution practices.

INTERNATIONAL COUNCIL ON MINING AND METALS

ICMM is dedicated to improving the social and environmental performance of the mining and metals industry. Bringing together 23 mining and metals companies and 34 regional and commodities associations, it serves as an agent for change: identifying common challenges and establishing a safer and more sustainable industry. ICMM's 2016-2018 strategy and action plan prioritizes environmental stewardship, the role of mining and metals in society, and human well-being. Membership of ICMM requires a commitment to its 10 Principles which have been benchmarked against leading international standards and serve as a best-practice framework for sustainable development in the mining and metals industry.

INTERGOVERNMENTAL FORUM ON MINING, MINERALS, METALS AND SUSTAINABLE DEVELOPMENT

IGF is a member-driven organization that provides national governments the opportunity to work collectively to achieve their sustainable mining goals. IGF's overarching objective is enhancing capacities to achieve sustainable development objectives through good governance in the mining sector. It is devoted to optimizing the benefits of mining to achieve poverty reduction, inclusive growth, social development and environmental stewardship. IGF serves as a unique global venue for dialogue among its 55 member country governments, mining companies, industry associations and civil society.

The background of the slide features a silhouette of an industrial facility, likely an oil or gas processing plant, against a vibrant sunset sky. The sky transitions from a deep blue at the top to a bright orange and red near the horizon. The industrial structures include a tall, lattice-like tower, various pipes, and smaller towers, all rendered in dark black against the colorful background.

SDG INDUSTRY MATRIX FOR ENERGY, NATURAL RESOURCES & CHEMICALS

The following pages outline opportunities – under each of the 17 SDGs – for companies to create value for their business whilst creating a more sustainable and inclusive path to economic growth, prosperity, and well-being. It also profiles practical company examples submitted through the consultation process.

SDG 1

End poverty in all its forms everywhere

OPPORTUNITIES FOR SHARED VALUE

- Adhere to the principle of **free, prior and informed consent** which requires companies (and Governments) to respect a community's right to give or withhold its consent to proposed projects that may affect the lands they customarily own, occupy or otherwise use.
- Fully **include affected communities in decision making processes** which will affect them, thereby improving outcomes for affected communities and maintaining the company's legitimacy and license to operate.
- Support displaced and resettled communities to develop improved **alternative livelihoods**, and in conjunction with governments ensure they have access to basic services, particularly considering the needs of women, people with a disability, and other vulnerable groups.
- Adopt global principles for **responsible tax** to underpin fair and transparent payment of tax and royalties, in accordance with the Extractive Industries Transparency Initiative.
- Contribute to poverty reduction by promoting inclusive direct **employment**, indirect employment through supplier training and local sourcing.
- **Alleviate energy poverty** by facilitating the connection of communities to electrical grids, developing innovative and affordable renewable energy solutions for remote communities and providing low cost and cleaner alternatives to solid fuels such as coal and Kerosene (e.g. LNG).

LEADING BY EXAMPLE

- The Luffala Project was established in 2010 through a collaboration between **PTT Global Chemical Public Company Limited** and the School of Cosmetic Science, Mae Fah Luang in Thailand. This project aims to alleviate poverty in the communities surrounding the company's operations by providing decent work and creating income. Cosmetic science specialists educated people

in the community on how to make soap with natural raw materials found in the local area, whilst PTT Global Chemical provided Glycerin and shared its knowledge and technology to produce a combination between soap and loofah. Luffala is now being made commercially and is available at convenience stores at PTT Gas Stations and other leading souvenir shops, providing regular



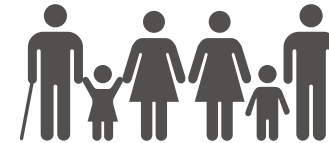
1 NO POVERTY



Photo: Edwin Huffman/World Bank

SDG 1

End poverty in all its forms everywhere



1 NO
POVERTY

income from the sale of Luffala products. In addition to enhanced community engagement, PTT found that by enabling employees to practice providing marketing advice the project enhanced employee communication and marketing skills.

- ‘Ser+ realizador’ is a collaborative initiative promoted by **Braskem**, in partnership with Ambev, Bunge, Gerdau and Sebrae, which aims to increase recycling of post-consumption waste in Brazil while also supporting the social and economic development of waste recycling workers. The initiative fosters increased efficiency in the recycling value chain through investments in equipment and infrastructure of the waste sorting and processing units, as well as training and personalized consulting for recycling workers. In turn, this enables workers to increase their productivity and income. In 2015, ser+ realizador benefitted 70 cooperatives, comprising over 3,538 waste recycling workers. The best results were achieved by the 48 cooperatives who received monthly guidance. These cooperatives sent more than 25,000 tons of waste for recycling (12% of which referred to plastics in Braskem’s value chain: PP, PE and PVC), and saw 70% of their members increasing their income in the year.

- **Rio Tinto** Minera Peru’s La Granja Project developed an approach that integrated and aligned the business and project schedule with a responsible approach to engagement and agreement-making on land access. The company worked with local communities to design and implement an engagement process to discuss the possibility of land acquisition and resettlement if the project proceeded, and agree on general terms and principles that would be applied in future negotiations. During the process, community members had the opportunity to share their concerns, fears and interest in considering the possibility of resettlement. The process also yielded critical information for the company on the likelihood and potential costs of land acquisition and resettlement.



Photo: Edwin Huffman/World Bank

SDG 2

End hunger, achieve food security and improved nutrition and promote sustainable agriculture



2 ZERO HUNGER

OPPORTUNITIES FOR SHARED VALUE

- Design **site infrastructure** and water management capabilities with local agricultural needs in mind, taking into account all economic, political and social impacts of providing resources to drive shared benefit with local communities.
- Develop the **farming productivity and capacity** of rural communities surrounding mines, refinement and production facilities, increasing local demand for sustainable energy and fertilizer products, while also supporting cost effective local sourcing of nutritious food for employees.
- Ensure **watershed and natural resource management** surrounding mines and plants preserves the fertility of agricultural land, conducting baseline studies to ensure that toxic materials are not being added to soil or water supplies.
- Increase **supply of electricity to farm households** to improve their productivity and enable farmers to better retain labor.
- Engage in **collaborations** between energy supply companies and **mechanized agricultural equipment** providers (including tractors) to increase access to affordable mechanized production techniques which improve productivity.
- Develop sustainable and affordable **plant protection chemicals** and other agricultural solutions and systems to improve the quality, nutrition and production intensity of food and feed.
- Design mines, refinement and production facilities and associated infrastructure with local agricultural needs in mind, finding **synergies water usage and storage**.
- **Procure biomass** from farmers in developing countries to contribute to sustainable fuel production and energy generation, whilst also raising farmers' incomes.
- Establish **potash** mines to provide soil fertilizer to surrounding communities as well as to farmers in other parts of the country and region.
- *In line with the Nutrition for Growth Pledge, commit to put good nutrition at the core of business practice. As a first step, support the health and productivity of workforces by introducing a **nutrition policy** and providing support for breastfeeding mothers.*



Photo: Sebastian Szyd/World Bank

SDG 2

End hunger, achieve food security and improved nutrition and promote sustainable agriculture



2 ZERO HUNGER

LEADING BY EXAMPLE

- **Teck**, one of the world's largest producers of zinc, supports an innovative crop nutrition project with China's Ministry of Agriculture and the International Zinc Association to promote sustainable agriculture. Adding zinc to fertilizer has been demonstrated to increase crop output, improve food security and increase the nutritional quality of crops. Nearly 45% of children in China suffer from zinc deficiency and do not get enough nutrients in their diet. By reaching the company's target of increasing zinc usage in fertilizer by 20,000 tons in 2016, approximately six million children in China will see improved zinc nutrition. This initiative improves food security, nutrition and sustainable agriculture, in addition to creating a new market for one of Teck's products.
- In cooperation with the Ministry of Energy and Nong Toom Community, PTTEP initiated the Flare Gas Utilization for Local Agricultural Product Processing Project. Through this, **PTT Exploration and Production** (PTTEP) sells the excess associate gas from its crude oil production process (that would otherwise be flared) to the community for use as cooking gas for the community's agricultural product processing. To facilitate this, PTTEP constructed the Nong Toom Agricultural Product Processing Center

(with four buildings and 240 cooking stations) and installed a one kilometer pipeline for transporting the excess gas. The natural gas is sold to the community at 50% of the market price when compared with their previous Liquid Petroleum Gas purchase. The Project provides PTTEP with an additional revenue source whilst reducing GHG emissions by more than 5,000 tons annually.

- **Yara** is a dedicated partner to the Southern Agricultural Growth Corridor of Tanzania (SAGCOT), a public-private partnership which aims to transform largely subsistence smallholder agriculture into a sustainable commercial farming sector serving local, regional and international markets. The partnership's ambition is to create at least 420,000 new employment opportunities within the agricultural value chain and generate annual farming revenues of US\$1.2 billion for Tanzania. In 2015, Yara opened its new fertilizer terminal in Dar es Salaam, the first infrastructure investment to be realized through the partnership. Yara's nitrogen-based crop nutrition solutions have the multiple effect of improving agricultural productivity while reducing environmental pressure and greenhouse gas emissions.
- **Green Social Bioethanol** is a social business enterprise that designs, develops and installs Ethanol Micro Distilleries in rural areas of developing countries. The company brings together a network of experts and investors to produce sustainable biofuel, providing people with access to clean and safe energy resources. Green's Ethanol Micro Distilleries are installed with support from local partners to produce social bioethanol from locally grown crops in an efficient and sustainable manner. Projects spur rural development, provide a steady demand for crops, generate employment and increase farmers' income, while providing a clean source of energy for the community.
- **Mitsubishi Chemical** is in the process of commercializing the world's first bio-based Polybutylene Succinate (PBS), an environmentally friendly polymer, at its joint venture with PTT Public Company Limited. PBS, known for its superior bio-degradability, can add value to waste that would normally be landfilled or incinerated by allowing the waste to be turned into fertilizers through composting. Applications of PBS are growing rapidly, starting from items such as paper cups, cutlery, compost bags and mulching films for farming. Compared to the conventional fossil

based polymer, bio-based polymers use sustainable resources which have a lower environmental impact and also provide new opportunities for the farming industry.

Braskem, a petrochemical company and leading biopolymer producer, produces resins for plastic films used in agriculture to cover soil, known as mulches. In 2015, in partnership with EletroPlastic and the Federal University of Uberlândia in Brazil, Braskem developed a field study on the use of mulching in coffee crops. After a year and a half of planting, the study found that crops with mulching had better results than control samples because mulching prevents the development of weeds, thereby reducing costs and the need for pre-emergent herbicides. The solution also saves significant amounts of water by reducing water evaporation, thereby allowing the area to remain moist with reduced irrigation.

SDG 2

End hunger, achieve food security and improved nutrition and promote sustainable agriculture



2 ZERO HUNGER

- In Hungary, the combination of record-setting rains and severe droughts had growers looking for ways to protect their soil: too much rain can wash it away – and too little can dry it out making it more susceptible to erosion during heavy winds and precipitation. Conventional tilling techniques can compound these factors and contribute to soil compaction so that water cannot soak into the soil where it is needed. **Syngenta's** CONTIVO® system helps growers in Hungary to adopt conservation tillage techniques that leave at least 30% of the previous year's crop remnants on the surface of the soil before planting. It combines proven conservation tillage practices with innovative seeds technology, suitable equipment and appropriate use of fertilizer and crop protection protocols to protect soil health while still maintaining high yields.
- **Agrium** has worked with stakeholders to develop the 4R Solution to help smallholder farmers sustainably increase yields and profitability on their farms. This is accomplished under a Solution model that uses on-farm demonstrations to provide growers with nutrient management knowledge and regionally specific 4R nutrient recommendations created through the Nutrient Expert® decision support software and by increasing local adoption of these recommendations by expanding extension capacity. The Solution is scaled through shared value partnerships which bring government, NGOs and the private sector together to expand extension capacity, while the fertilizer industry,

researchers, and smallholders develop regionally specific 4R recommendations using Nutrient Expert. The end result is increased yields and profits that small holder farmers can use to expand their farming operations and increase access to education, health care and a more staple and nutritious food supply. The Solution is being expanded from Kenya where over 3,000 farmers, 100 extension officers, and 300 undergraduates have been trained on 4R practices and management, to other countries.

- **PTT Global Chemical** (PTTGC) has developed Polyactic Acid (PLA) bioplastic, a degradable bioplastic which can be processed easily and can be used for various applications in agriculture. For example, PTTGC collaborated with the Royal Project Foundation and The Thailand Research Fund in co-development of PLA bioplastic for use in nursery bags, greenhouse sheeting in planting fields, and greenhouses. The outstanding characteristic of this bio-degradable plastic is that it can decompose within 6-12 months. This is an ideal characteristic for nursery bags because it eliminates the process of nursery bags removal and thus reduces waste being generated following planting process. Further, it eliminates the need to remove tree sprouts from nursery bags and transfer them into planting plots. The bio-degradable nursery bag hence increases the survival rate of tree sprouts while also generating revenue and promoting environmental awareness.



Photo: Tran Thi Hoa/World Bank

SDG 3

Ensure healthy lives and promote well-being for all at all ages

OPPORTUNITIES FOR SHARED VALUE

- Develop robust employee **health and wellness programs** which reduce and treat communicable and non-communicable diseases, particularly those with high prevalence in the industry including tuberculosis, HIV, malaria, respiratory and heart diseases, and mental illness. Participate in local and global collaborations, as appropriate (e.g. Stop TB and Roll Back Malaria).
- Extend health provision to **employees' families** and the surrounding community, in collaboration with the Ministry of Health, where possible.
- Together with the Ministry of Health, develop **disease surveillance** programs to quickly detect and respond to epidemics in the community and surrounding area.
- Implement high **safety standards** which minimize the risk of morbidity and mortality from hazardous chemicals, air pollution, road collisions, mine collapses and other industrial accidents.
- Invest in **disaster risk reduction and preparedness** which would, for any environmental accident, include an effective early warning system and safety mechanisms for isolating the hazard, preventing and limiting spread.
- Find new applications for **chemical or renewable energy technologies** which improve healthcare provision in off-grid communities, including low-energy or solar powered medical devices and treatment facilities as well as heat stable products.

LEADING BY EXAMPLE

- **Sumitomo Chemical** is expanding its R&D to develop a full range of innovative vector control technologies, with the goal of helping to eliminate malaria and other vector transmitted diseases. Sumitomo Chemical has been making a substantial contribution to preventing malaria by supplying countries in Africa and Asia with Olyset™ Net, a long-lasting insecticidal mosquito

net it developed in-house to protect people from malaria-carrying mosquitoes. The company has since launched Olyset™ Plus which is effective in controlling insecticide-resistant mosquitoes. The company is also developing and supplying new insecticides for the control of mosquitoes that transmit other infectious diseases, such as dengue or Zika fever. Olyset™ Net



3 GOOD HEALTH
AND WELL-BEING



Photo: Sebastian Szyd/World Bank



3 GOOD HEALTH AND WELL-BEING

production operations have been established in Africa, thereby creating and maintaining local jobs while contributing to the growth of the regional economy.

- **Yara** has used its extensive knowledge of nitrogen chemistry to make a positive impact on human health. Yara is a global leading producer of Nitrogen Oxides abatement solutions for vehicles and industrial plants, as well as maritime vessels, helping to limit the negative impact of combustion processes and diesel exhaust. Nitrogen Oxide emissions are a primary cause of acid rain and the formation of ground-level ozone and smog, aggravating the respiratory problems of city dwellers and WHO recently classified diesel exhaust as carcinogenic to humans. Yara also provides Hydrogen Sulfide emissions abatement solutions which have a potentially life-saving effect, as the toxic gas can be lethal for workers exposed to it in wastewater treatment plants. Furthermore, the reduction of Hydrogen Sulfide emissions has a positive economic impact because it controls corrosion, expanding the lifespan of wastewater treatment systems.

- **DSM's** Brighter Living Solutions are profitable products and innovations that have a measurably better impact on the planet and people than mainstream competitors. One example, is the company's Decovery® portfolio, which aims to set a new standard in sustainable, Volatile Organic Compound-free, low-odor, water-based decorative paints, reducing the health risks of solvent-based paints for the user and producer. DSM's Decovery plant-based resins use renewable materials as sustainable building blocks for paint and coatings resins, in place of traditional binders which contain synthetic petroleum-based resins.
- **Anglo American** is recognized as a leader in TB and HIV/AIDS management. In 2002 it was one of the first companies to introduce free anti-retrovirals to its employees and later to their dependents – a process which has had a measurable and positive impact on the physical, social and emotional welfare of its employees and on its business performance. In 2015, 68% of Anglo American's employees in southern Africa participated in HIV testing and testing and treatment of TB has also succeeded in reducing the TB incidence rate. To address SDG 3, Anglo American is participating in a public-private sector partnership with UNAIDS

which promotes HIV testing worldwide. During the AIDS 2016 International Aids Conference, this partnership reached over six million people on social channels and – via the #ProTESTHIV and #GenEndIt campaigns – achieved over 100,000 protests on the ProTESTHIV web site.

- **Dulas** Ltd has developed solar powered medical fridges that are used in remote regions across Africa, Asia, the Pacific Islands and Latin America to store blood and vaccines. The company is a major supplier of these fridges which are being used in numerous successful national immunization programs in hospitals, clinics, health centers and remote medical stations around the world. These have been approved by the strict Performance, Quality and Safety protocol set by the World Health Organization and feature independent freezer compartments and a durable sealed battery delivering continuous cooling to keep vaccines safe. The solar system provides secure constant power including a five day back up.
- **DONG Energy** takes action to build a sustainable work-life where people are energized to make a difference. The company supports its employees' energy and well-being through four focus areas:

exercise, nutrition, mental balance and sleep. DONG Energy offers a range of voluntary initiatives to help improve employees' sleep. Employees can download an app with advice and tools to improve sleep and, in 2016, DONG Energy took part in a research project in cooperation with Ashridge Executive Education in London. More than 500 employees applied to participate in the project aimed at finding out how people optimize their sleep.

- When the Ebola epidemic hit Monrovia in Liberia, **ArcelorMittal** contacted other London based companies operating in the region to share information and discuss risk mitigation and disaster response strategies. This led to the creation of the Ebola Private Sector Mobilization Group (EPSMG) through which companies collectively leveraged their communication networks, risk protocols, equipment and expertise to respond to Ebola. The EPSMG trained over 50,000 employees on the prevention and treatment of Ebola. Further, it donated essential items to aid the response including 50,000 liters of chlorine, 4 million latex gloves and 55 vehicles.

SDG 4

Ensure inclusive and equitable quality education and lifelong learning



4 QUALITY EDUCATION

OPPORTUNITIES FOR SHARED VALUE

- Invest in school, technical and other **education facilities** for workers, their families and communities near energy, refinement and production facilities in order to develop the capacity of current and future local employees and suppliers.
- Sponsor employees and community members to attend **higher learning** institutions to reduce reliance on expatriate staff.
- Provide **training to local suppliers** and service providers to increase the quality and sustainability of their operations, so that they can participate in company supply chains and capital projects.
- Promote and **invest in university and vocational STEM** (Science, Technology, Engineering and Mathematics) education and to secure access to employees with the skillsets which meet future business needs in countries of operation (e.g. engineers, geoscientists, chemical technicians, etc.)
- *Collaborate with other businesses, NGOs and governments to improve learning in countries within the company's value chain (thereby making a long term investment in a diverse talent pipeline and improved economy).*

LEADING BY EXAMPLE

- **Amec Foster Wheeler** and Universiti Teknologi Brunei (UTB) have a Memorandum of Understanding in place for an education partnership created to support the Government's priority to develop the local talent pool in Brunei's Oil & Gas industry. The partnership is helping to bridge the gap between academic and industrial knowledge at university level to attract young talent into the industry and help increase their employability. The training program is led by an Amec Foster

Wheeler Program Director and delivered by experts from the industry, and it is designed to provide an overview of contemporary industry practices. To date, Amec Foster Wheeler has delivered two successful training programs to third and fourth year undergraduates from the Faculty of Engineering, School of Business, and School of Computing and Informatics at UTB. The initiative forms part of the company's goal to build long-term partnerships with higher education institutions in the community-



UN Photo Library



4 QUALITY EDUCATION

while building a sustainable pipeline of talent for the future.

- Each year **DuPont** awards unrestricted funding to a promising new university faculty. The 2015 class of DuPont Young Professors is an international and interdisciplinary group which receive grant funding over two years to support research to address global challenges in food, energy and protection. The overarching goal of this program is to help promising young and untenured research faculty students begin their research careers, while also establishing mutually beneficial relationships, including future research partnerships, student hiring and other opportunities. Since 1968, this program has provided over US\$50 million in grants to more than 700 young professors in 140 institutions across 19 countries.
- **Eskom** aims to inspire young scientists and researchers through the Eskom Expo for Young Scientists (EEYS) that engages young people in research projects in science, technology, engineering, mathematics and innovation (STEMI). EEYS participates at all levels of education ranging from the individual student in the classroom, to provincial basic education departments, tertiary education institutions, commerce and industry.

EEYS arranges 35 regional science expositions across the country and one prestigious International Science Fair where students exhibit their research or investigative work and are judged by experts. Outstanding projects are rewarded with various prizes including university bursaries. By participating in EEYS activities, learners increase their awareness of STEMI topics while also helping build the long term pipeline of talent for the industry.

- **Overgas** encourages vocational education in Bulgaria, especially in the field of gas technologies. In partnership with three high schools the company has created practical curricula for the 'energy facilities technician' specialty. In addition, in partnership with the Ministry of Education and Science, for the last 11 years Overgas has organized the 'best young installer' competition which is one of the best known and best attended competitions for students from vocational high schools. The long lasting initiative encourages practical experience in vocational education and this is the basis for dual education systems in gasification. Additionally, the company offers summer internships for students, following which many choose to work at Overgas.



Photo: Alex Baluyut/World Bank

SDG 5

Achieve gender equality and empower all women and girls



5 GENDER
EQUALITY

OPPORTUNITIES FOR SHARED VALUE

- Fully **include women in consultations** on resettlement (even when their land rights are not locally recognized) and community development.
- Provide female entrepreneurs and small business owners with **training and support** and include them in **supply chains**.
- Help attract women to employment in the industry by creating a **gender-sensitive work environment**, including investing in gender awareness training, accommodating women's needs on extraction and production sites (e.g. different sizes of protective equipment, gender sensitive bathrooms and changing areas, etc.) and providing flexible work hours and/or childcare facilities.
- Implement policies, training and support programs to end sexual exploitation, domestic violence and other **violence against women** perpetrated by employees and others in the community.
- *Adopt the Women's Empowerment Principles, increase the share of women on **company Boards and in senior roles**, eliminate gender pay gaps, and invest in policies and programs which support women in the workforce and encourage organizations in the value chain to do the same.*

LEADING BY EXAMPLE

- **ENEL** partners with the Barefoot College through its Enel Green Power program to empower women from electricity-deprived villages to install and maintain small photovoltaic systems. While growing new markets for solar products, the partnership develops the capacities of women entrepreneurs by providing them with technical training and bringing sustainable energy sources to their communities. The program was expanded in 2015 to Kenya and Tanzania where it has helped to electrify more than 750 households in two years.
- Now in its third year, the **Enbridge's** Engineering Futures program pairs Aboriginal female high school students with female role models at the company, as part of a partnership between Edmonton Catholic Schools and Enbridge's FEMINEN (FEMales IN ENgineering) employee resource group. The



Photo: Shehzad Noorani/World Bank



5 GENDER
EQUALITY

underlying goal of the Engineering Futures program is to encourage more female high school students to consider science, technology, engineering and mathematics (STEM) career pathways. This mentorship helps Enbridge build and maintain a respectful and welcoming workplace, contributing to its recent selection on the annual list of Canada's Best Diversity Employers.

- **Rio Tinto** and the Centre for Social Responsibility in Mining at the University of Queensland, Australia developed a how-to guide that provides specific suggestions on gender-sensitive approaches to engaging with communities and stakeholders and finding solutions that benefit both the company and society. The guide provides a rationale for integrating gender into the business and shares relevant international protocols. Clear explanations that follow a management system approach offer specific how-to steps along with case studies.
- **IBERDROLA** is certified as a Family Responsible Company because of its support for maternity and equal opportunities in the workplace. The company provides generous family leave programs, workforce exit and re-entry opportunities, flexible work options, occupational training, and

comprehensive studies to monitor hiring, promotion, and compensation of its female employees. Its Equal Opportunity and Reconciliation policy includes flexible reduction in the workday to five hours a day until the child reaches 1 year (without negatively affecting fixed salary), payment of full salary during maternity/paternity leave, and an increase in leave to care for children and relatives to the second degree of kinship for up to 4 years. Further, job posts are reserved for the first 3 years of absence and a guarantee of posting in an equivalent category is provided in the fourth year. Access to professional training is also facilitated during these periods of absence.

- **Eskom** Holdings LOC is committed to cultivating a balanced workforce that will support and further the company in the most efficient and effective manner. The company's Employment Equity Plan ensures that its workforce profile at all occupational levels is transformed and serves as a vehicle to address employment barriers and affirmative action measures. At executive level, Eskom has renewed efforts to use all recruitment and promotion opportunities available to address employment equity and plans to accelerate the development of female employees in professional and middle



Photo: Gennadiy Ratushenko/World Bank

management levels. This will help to ensure a pool of suitably qualified women for senior management positions as part of the overarching Eskom Women Advancement Program. Additionally, the company sets annual targets for procurement spend with suppliers that are at least 30% owned by black women, preferring to procure from level 1 to 4 B-BBEE compliant suppliers in line with the Company's Codes of Good Practice.

- The latest UK Government figures suggest that only 26% of workers in the energy sector are female,

whereas 55% of **Dulas** Ltd's senior managers are female. Women occupy two out of five director roles, three out of four Heads of Department roles, and two out of three service team roles, all far above the national average. The company believes that its holistic and compassionate ethos and subtle changes to the working environment (including flexi-time and home-working options) have had profound effect on workplace equality and female achievement.

SDG 6

Ensure availability and sustainable management of water and sanitation for all



6 CLEAN WATER AND SANITATION

OPPORTUNITIES FOR SHARED VALUE

- Where communities surrounding a production facility have limited access to water, integrate **community access to water** within mining and production facility design.
- Apply best practices in mining and oil and gas production processes, as well as in site design, to **reduce water requirements**, applying innovative technologies to conserve water (e.g. dry tailings in mining facilities).
- **Continuously monitor water quality** around extraction sites and production facilities to ensure that operations do not negatively impact water quality, maintaining companies' social license to operate.
- Collaborate with water utilities to invest in **water purification and desalination** plants and improved water infrastructure (e.g. pipelines) in emerging markets where this is affordable and sustainable, thereby providing water for extraction and production facilities whilst also generating potable water for the wider community.
- Invest in **integrated water resource and watershed management** by reducing and recycling water used in extraction and production and, in conjunction with other stakeholders, seeking to enhance watershed functions which impact people, animals and plants.
- Impute a **value for water** (as part of a broader approach to natural capital accounting) and use the economic value in strategic and operational decision making, internal management reporting and external integrated reporting.
- *Sign the WASH Pledge of the World Business Council for Sustainable Development which calls on companies to implement access to **safe water, sanitation and hygiene at the work place.***



Photo: Edwin Huffman/World Bank



6 CLEAN WATER AND SANITATION

LEADING BY EXAMPLE

- **Odebrecht Ambiental S.A.**'s Aquapolo Project is the largest reuse water production system in South America and the fifth largest in the world - recycling and transforming treated wastewater into industrial water under stringent requirements. As a partnership between Odebrecht Ambiental and SABESP (State Water Company of São Paulo), Aquapolo can provide 650 liters per second of high quality industrial water to Capuava Petrochemical Complex located in the São Paulo's metropolitan area in Brazil, with a maximum production capacity of 1,000 liters per second. The Aquapolo Project ensures that drinking water will not be used for industrial purposes and prevents natural water sources from being affected by the industrial activity in that region. The current project's capacity is equivalent to the water supply for 500,000 inhabitants, emphasizing the project's importance for this water stressed metropolitan area.
- **CAP Minería** operates in three valleys of northern Chile - Copiapó, Elqui and Huasco - which suffer from water shortages. Given the delicate water situation in the Valley of Copiapo and in order to achieve growth of the company in the area, CAP's Cerro Negro Norte project is supplied with recycled

desalinated water for their processes, from the CAP Desalination Water Plant located in the Caldera commune. The wastewater from the filtering process is recovered 100% and sent by an aqueduct back to the operation. This enables the emissary of the port to be used only for emergencies, preventing use of 900,000 cubic meters of sea water per year. In addition, the Black Mountain North operation uses Thicken Tailings Disposal (TTD) or thickened tailings technology. The recovery efficiency of water in high density thickeners is greater than 98%, compared to 90-95% in a conventional thickener.

- In 2014, **Gold Fields** began a four-year program to improve water quality and access for communities in the direct area of influence of Gold Fields' Cerro Corona mine in Peru and to promote, in partnership with government, remediation of legacy mining activities (not associated with the Company). The program involves building new potable water systems through the construction of a water pipeline from a well at Cerro Corona, identifying and repairing water leaks in the existing water infrastructure and remediation of environmental liabilities that are contaminating a local stream. As a result of the

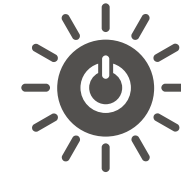
program, almost 90% of households in Hualgayoc now have access to sufficient clean running water. Apart from strengthening relationships between Gold Fields, the regulator and host communities, the remediation of legacy mining sites near Cerro Corona will significantly improve the quality of the water in the El Tingo River, on which communities depend for various uses. This strengthens the company's social license to operate in a region in which other mining companies have experienced water-related conflict with local communities.

- Dow Water & Process Solutions, a business unit of The **Dow Chemical Company**, introduced a wastewater management approach called minimal liquid discharge (MLD) in 2015. MLD was developed based on Dow's experience with effective and proven water treatment technologies. It is a more cost-effective and sustainable way for companies to improve their water footprint, enabling recovery of up to 95% of liquid discharges at a fraction of the cost of solutions aiming for zero liquid discharge. With MLD, Dow showed that businesses can do what is right for both the bottom line and the environment.

- **Yara** is assessing the water footprint of its own operations with the objective of developing innovative solutions for fertilizer and water management under conditions of water scarcity. The company's water scarcity adaptation strategy focuses on water stewardship by improving water use in fertilizer and agricultural production, as well as by advising growers on best practices for water management in irrigation and fertigation (the process by which nutrients are mixed into the irrigation water). To improve efficiency in fertilizer production, Yara monitors and reports on water use during production of its own fertilizer products. The company calculates water footprints for the production of fertilizers and for selected agricultural crops in order to detect hotspots of water use or water pollution and identify opportunities for improvements.

SDG 7

Ensure access to affordable, reliable, sustainable and modern energy for all



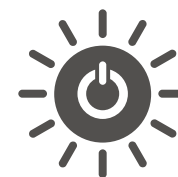
7 AFFORDABLE AND CLEAN ENERGY

OPPORTUNITIES FOR SHARED VALUE

- Identify and adopt **breakthrough technologies** to accelerate the transition to energy from renewable sources (solar, wind, hydro, geothermal and biomass), through in-house R&D or investment in new ventures aimed at increasing the cost effectiveness, reliability and storage capacity of renewables.
- Collaborate with the industrial manufacturing industry to inform research and design that will increase **power storage** systems for renewable energy sources.
- Facilitate the transition from high emission energy sources (e.g. coal and kerosene) towards **cleaner alternatives** such as natural gas (in addition to renewables), where appropriate and in line with agreed country development plans and frameworks.
- Utilize technological innovations to **reduce emissions** from modern energy generation, including developing and applying carbon capture and storage technologies, eliminating flaring, reducing fugitive emissions, and other high impact adaptations to existing processes and facilities.
- Improve integration of renewables into **grids and electricity markets** (e.g. through adoption of smart grid technologies, improved forecasting and greater long distance transmission capability).
- Provide **off-grid communities** with access to affordable renewable energy; for instance, through low-carbon micro-grids or low-cost community solar systems.
- Develop **shared energy infrastructure** arrangements to provide communities around mining and production sites access to affordable energy.
- Explore opportunities for engagement with national and multi-lateral development banks, as well as **alternative financial sources**, which maximize the power of technology to bring energy access to all.
- Explore innovative services provisions which **extend energy access** to under-resourced communities at price points that are affordable.



Photo: Dominic Sansoni/World Bank



7 AFFORDABLE AND CLEAN ENERGY

- **Educate consumers** on how to conserve energy and the availability and benefits of safe, renewable and cost-effective energy solutions, to increase demand for more choice and flexibility in the electricity market.
- **Share energy sector knowledge** with local governments to help them overcome barriers in energy access and contribute to the development of innovative solutions.
- Increase the proportion of **energy consumed from renewable** sources through the company's direct operations and encourage suppliers to do the same. For instance, join the RE100 and pledge to move towards 100% renewable power.

LEADING BY EXAMPLE

- **IBERDROLA** aims to provide an additional four million people with access to energy by 2020 through the Electricity for All scheme. This project was launched in 2014 and focuses on economically sustainable electrification schemes. By 2015, IBERDROLA had already brought electricity to over 1.4 million, including the beneficiaries of the Luz para Todos (Electricity for All) scheme in Brazil and those of other IBERDROLA Group's distribution companies in the most disadvantaged areas of Brazil. The project has three lines of action to achieve this aim including financing electrification projects through capital investment (for example, the PERSEO investment fund invests in disruptive technologies and businesses to shape the future of energy),

through business activities in countries where IBERDOLA is present, and through partnerships with not-for-profit organisations.

- Combustion emissions from **Neste's** Renewable Diesel fuel amount to zero because the renewable raw material absorbs the same amount of carbon dioxide as is released upon combustion. Neste renewable fuels can reduce greenhouse gas emissions by up to 90% compared to fossil fuels. In 2015, delivery company UPS and technology company Google started using Neste Renewable Diesel in their fleets. Both UPS and Google aim to reduce their carbon emissions and renewable diesel offers an easy way to reach that goal as it is

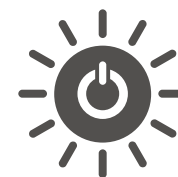
completely compatible with the current engines and distribution systems.

- **UPM BIOFUELS** has innovated and developed a production process to transform crude tall oil, a wood-based residue of UPM's own pulp production, into a unique advanced biofuel called UPM BioVerno. It can be used in any diesel engine – car, bus or truck. It reduces greenhouse gas emissions by 80% compared to fossil diesel, and does not compete with food production. Based on results from the pilot production and testing, UPM Biofuels began commercial production of the renewable diesel in 2015.

- **DuPont** is commercializing cellulosic ethanol, one of the lowest carbon emitting and most sustainable transportation fuels in the world. Since 2009 DuPont has operated a demonstration facility in eastern Tennessee producing cellulosic ethanol from corn stover, switchgrass and sugar cane bagasse. This experience combined with DuPont's extensive work with farmers enabled the construction of a 30-million gallon per year facility located in central Iowa that is scheduled to begin producing cellulosic ethanol from corn stover in 2017. The business aims to license a comprehensive technology package that includes cellulosic ethanol engineering design & technology,

access to plant specific vendors and proprietary equipment, technical support during construction and operations, enzyme biocatalyst supply and feedstock supply consulting.

- **Amec Foster Wheeler** designed and managed the delivery of the turbines for the Beatrice Wind Farm Demonstrator project, a joint venture between **Scottish and Southern Energy** and **Talisman Energy** to build the world's first deep-water wind farm. The Beatrice Wind Farm demonstrator project was a central part of the DOWNVInD (Distant Offshore Wind Farms with No Visual Impact in Deepwater) renewable energy research and development program, which includes 18 different organizations from six European countries. The project comprised two 5MW wind turbines sited in 45 meters of water in the Moray Firth, some 25kms off the east coast of Scotland and linked to the Talisman Energy (UK) Beatrice Alpha oil production platform nearby. Electricity from the demonstrator turbines is used to power the platform operations. In addition to reducing energy costs, the offshore wind power will extend the life of the Beatrice platform and help maximize oil recovery from the field. It is hoped that surplus electricity will be sold to the UK national grid, generating an additional revenue stream for the operator.



7 AFFORDABLE AND CLEAN ENERGY

- In 2015 **Hera**, a multi-utility company which operates in the distribution of gas, water, energy, and waste disposal in Italy, began the authorization process for the construction of an anaerobic digestion section and biogas purification system to produce biomethane from the organic waste treated in a composting plant in Bologna (Italy). The authorization phase is expected to be completed before the end of 2016. The biodigester will be able to process 100,000 tons per year of organic waste from separate collection. From 2018 it will produce about 6.3 million cubic meters per year of biomethane and about 20,000 tons of compost. The total investment, estimated at just under EUR30 million, is intended to improve the environment by lowering CO₂ emissions compared to traditional composting and to do so through the production of a renewable energy source. The biomethane can be fed into the gas networks or used as vehicle fuel instead of fossil fuels. The biomethane will be fed into the gas networks.
- **Powerstorm ESS's** aims to provide widespread access to sustainable electricity through cost-effective, energy-efficient storage systems. Beginning 2017, the company will introduce

zeroXess, a complete solar home energy storage solution that provides electricity, lighting and internet connectivity. The zeroXess efficiently converts solar energy from a 60-watt solar panel into long-lasting, cobalt-free, lithium-ion batteries. This cutting-edge technology is housed in a compact box, with a 10-inch screen for user interaction, monitoring and management. It powers four LED fixtures and features six USB ports, to charge mobile phones or other connected devices. Powerstorm ESS is looking to address the needs of millions of people throughout the developing world, who rely on low-voltage off-grid home energy systems, often depending on toxic kerosene lamps as a main light source after dusk. zeroXess aims to provide these customers with a safe, reliable and sustainable energy system that serves everyday basic needs.

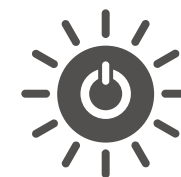
- **CINTAC**, a CAP Group company, is building one of the largest over roof solar plants in Latin America. The energy complex is being installed on the company's roof in Maipú, Santiago, measuring 90,000 square meters. It will have a total capacity of 8 MWp, equivalent to the annual electricity consumption of 5,000 households of five members. This project represents an effort to innovate and diversify the

company, which to date has mainly engaged in the manufacture of steel products. In the first stage, the objective of the plant will be self-supply for production processes and injection of a surplus to the distribution network. With this, annual cost savings of 50% of consumption are expected. The photovoltaic plant will avoid the emission of about 4,000 tons of CO₂ per year, equivalent to planting nearly 400,000 trees. This project will be operational in the first half of 2017

- **Red Eléctrica** has participated, through **INELFE** (a company owned by REE and RTE), in the electricity interconnection between Spain and France. This consolidates the European electricity grid and improves the competitiveness of electricity markets, decreasing generation costs. The interconnection also provides greater capacity for the integration of renewable energies, reducing dependency on fossil fuels and CO₂ emissions. This project has enabled REE to meet its targets as a Transmission Systems Operator, whilst also reinforcing links with the French transmission operator (RTE) and positioning the company as a technology innovator. The project was developed through participative dialogue with key stakeholders and a high rate of amicable agreements with the owners of the affected land.

It has generated local value through the creation of 100 jobs and the allocation of EUR20 million to Small and Medium Sized Enterprises in the region during the execution of the work. Additionally, the interconnection guarantees power supply for the Girona region and guarantees the operation of the high-speed train connecting Spain and France.

- **Statoil's** approach to business and growth opportunities within renewables and new energy solutions includes both commercial investments and research and development. In 2015, the company announced a new business area for New Energy Solutions to drive further profitable growth within these areas. The company's wind farms currently deliver renewable energy to more than 200,000 households in the UK. This number is expected to increase to more than 600,000 households when the Dudgeon offshore wind farm comes on stream in 2017. Additionally, in 2016 Statoil launched a US\$200 million venture capital fund dedicated to investing in growth companies in renewable energy. The first investment by Statoil Energy Ventures was in United Wind, securing the company early entry in the distributed wind market in the United States.



7 AFFORDABLE AND CLEAN ENERGY

- **Teck** has partnered to develop the SunMine solar project, western Canada's largest solar power facility and the first solar project built on a reclaimed mine site. SunMine is located on Teck's former Sullivan mine site in Kimberley, British Columbia, once home to the world's largest lead-zinc-silver mine. Teck provided use of the land and site infrastructure as well as a US\$2 million contribution towards SunMine, which uses over 4,000 solar-cell modules mounted on 96 solar trackers that follow sun movement to maximize solar exposure. Participating in SunMine reflects both Teck's commitment to supporting local communities, even after mining has ceased, and the company's focus on expanding the use of alternative energy.
- In Africa **Eni** develops energy sources not just for export but also for the supply of local populations, providing millions more people with access to energy. For instance, Eni provides almost all the gas necessary to supply Libyan power plants (more than 5 BCM per year, covering all power needs). In Egypt, where its entire gas production already stays in the country, Eni will help to create the conditions for energy independence, thanks to the development

of the new giant discovery of Zohr offshore gas. In sub-Saharan Africa, Eni has invested in power generation using associated gas, which has traditionally been flared. Eni has installed more than 1 GW of electricity capacity in 4 plants in Nigeria and Congo and transmission infrastructures which provide 20% and 60% of these countries respective electricity supply, for an investment of more than US\$2 billion. This model will soon be replicated in Angola and Ghana, where Eni has signed an agreement for the development of new projects, as well as in Mozambique.

- **Centrica** has established a new global Connected Home and Distributed Energy and Power (DE&P) business and expect to invest £700 million over the next five years to revolutionize the traditional, centralized way of generating and supplying energy. The company plans to give large scale energy users in the UK, such as businesses and hospitals, the ability to take control of their energy and use it more intelligently to reduce, generate and manage it themselves. DE&P will bring together flexible, local generation with storage and renewable technologies alongside energy efficiency measures



and smart building management systems. All of these technologies will be managed from a smart energy control center to help keep costs and carbon emissions as low as possible. DE&P will also develop new propositions and technologies that reduce demand on the grid and reward customers with lower bills for shifting use away from peak times. Together with battery storage and smarter

grids, this is expected to help energy use become more efficient, reduce consumption and improve future energy security.

SDG 8

Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all



8 DECENT WORK AND ECONOMIC GROWTH

OPPORTUNITIES FOR SHARED VALUE

- Develop the capacity of **entrepreneurs and SMEs** in countries of operation to increase local sourcing, job creation and incomes.
- Implement hiring and training programs that focus on **local employees** including women, youth and marginalized persons (including indigenous peoples).
- Drive economic growth through local **procurement and supplier development strategies**, creating internal incentives for local procurement opportunities and facilitating staged approaches to the execution of capital projects.
- Promote high standards of **health and safety** in production and extraction sites, encouraging employees to take personal and collective responsibility for creating a safe working environment and investing in technologies that reduce the risk of human error and accidents in operations.
- Set **supplier standards** that require suppliers to uphold labor rights (including equal opportunities, equal pay for equal work, rights of migrant workers, and safe working conditions) and support their implementation through supplier training and monitoring.
- *Provide targeted internships for young people from disadvantaged backgrounds in order to promote social mobility whilst also enhancing company performance through increased workforce diversity.*
- *Create opportunities for lower paid workers to develop their skills and gain access to improved professional opportunities, both within and outside of the energy, natural resources and chemical sectors.*

LEADING BY EXAMPLE

- Launched in 1960, **TOTAL's** Young Dealers Program helps young people who have proved themselves at Total retail outlets to strike out as entrepreneurs by becoming managers of their own service stations. Today, almost 30% of the approximately 4,200 Total stations in Africa are run by Young Dealers.



Photo: Edwin Huffman/World Bank



8 DECENT WORK AND ECONOMIC GROWTH

In 2013, to take the program to the next level, Total Sénégal and the CESAG business school created a professional bachelor's degree in small business. This aims to strengthen the management skills of Young Dealers by allowing them to earn a recognized qualification.

- **Anglo American's** Avançar Program facilitates the transfer of long-term skills and capabilities to businesses and young adults in Brazil, creating measureable impact and self-sufficiency. In 2014 and 2015, participant businesses that wished to join the Program were invited to apply via a competitive selection process. Once selected, they undertook business advisory services to identify growth opportunities, reach new customers and markets, improve operational efficiency and obtain the resources they need to grow. A specific group of participating businesses were Anglo American local suppliers, with the objective of increasing the shared value of local procurement.
- **BHP Billiton** implements targeted local procurement programs, improving local vendor supply chain capacity and capability while also increasing the company's indirect sphere of influence in local communities and regions as a result. The

company requires that all operations and assets have local procurement plans, and in 2015 BHP Billiton distributed approximately US\$41.5 billion in economic value.

- With a view to promoting sustainable and equitable growth in its value chain, **Braskem** created Braskem Labs, a program that selects entrepreneurs using Braskem's products (chemical products and plastic applications) in an innovative way to address socio-environmental issues. The program, delivered in partnership with Endeavor, a global NGO focused on helping entrepreneurs succeed, provides intensive capacity building, including one-on-one mentoring with Braskem executives, with a view to accelerating the companies' growth and scaling up their operations to maximize social and environmental benefits. It also provides access to markets, investors and Braskem partners. Projects supported in 2015 include a low-price prosthetic foot, a PVC house that can be built in 2 days, and sanitation and rainwater storage solutions.
- **Eskom** established the Eskom Contractor Academy as part of the company's enterprise development program, supporting skills development and enhancing job creation, which contributes to the

alleviation of poverty. The Contractor Academy started as a pilot program in 2008 and has since grown significantly. To date, the company has completed 73 academies and almost 1,000 contractors have been successfully trained. Over the last three years, Eskom trained over 500 contractors from all nine provinces of South Africa, with youth accounting for approximately 60% of participants.

- In the countries where **Statoil** operates, it is committed to recruiting locally and build local capacity and skills. For example, the company's Johan Sverdrup oil field will be one of the most important industrial projects in Norway over the next 50 years. It is expected to create significant value to Norwegian society through tax payments, job opportunities and contracts to the industry. By the end of 2015, the value of contracts awarded to Norwegian registered companies was over US\$4 billion (NOK 34 billion), representing more than 70% of the allocated contract value. In Tanzania Statoil spent around US\$900 million (NOK 7.6 billion) with Tanzanian registered companies between 2010 and 2015, of which the majority was with international companies registered in Tanzania. This represented over 75% of the total procurement spend in Tanzania

during the period. In Brazil, Statoil achieved 64% local content for its Peregrino field development, which is well above the 35% target commitment it made to the Brazilian government.

- **Neste's** Way Forward to Safety program is a long-term safety development program in which all Neste people take part, including senior management, recognizing that safety is integral to its corporate culture and also critical to the company's reputation and profitability. In 2015, the company focused on management practices and supervisory work and organized safety workshops with the company's Board of Directors, the Executive Board and the management teams of several functions, discussing the role and significance of the management in safety management. In 2016, the work will continue in the units' management teams and with the entire personnel. The aim is that every Neste employee feels a professional responsibility for safety in general and can return home safely after a safe day at work.

SDG 9

Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation



9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

OPPORTUNITIES FOR SHARED VALUE

- Develop **public-private partnerships for infrastructure** investment including urban provision of energy access and shared use rail, road, power, water and telecommunications infrastructure.
- Collaborate with government and other energy, natural resource and chemical companies to develop the **capacity of industry** in the countries of operation to increase the availability and quality of local procurement options, including equipment and machinery.
- Incorporate sustainability and resilience features into **capital projects** (e.g. renewable power generation, reduced water use, etc.) and incorporate long term value-add for surrounding communities into project planning.
- Collaborate with governments and other companies to create **industrial zones** which unlock complementary investments in infrastructure, technology and production.
- Implement **local procurement and employment** initiatives, contributing to the development of a local industrial base.
- Where feasible, develop **shared infrastructure solutions** in remote locations, collaborating with governments and the private sector to develop economies of scale (through enhanced capacity) and scope (through synergies across different types of infrastructure investments) in the planning phases of development.
- **Contribute data and industry knowledge** to local research and development initiatives to drive innovation and capacity building.

LEADING BY EXAMPLE

- **Vallourec** developed a wide range of steel tubular solutions designed for power generation, based on steel grades which contribute to increased energy efficiency of power plants and reduced CO₂ emissions. Modern power plants achieve higher efficiency through higher process temperatures

and pressures, which has resulted in continuously increasing demands on the materials used for tube and pipe production. Vallourec is a leader in tubular solutions for power plants, and has developed solutions for supercritical and ultra-supercritical power plants which are the plants that generate



Photo: Yosef Hadar/World Bank



9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

the lowest CO₂ emissions compared to the average emissions of thermal power plants around the world.

- **ArcelorMittal** is applying a shared infrastructure approach, connecting its iron ore operations to an expanded port through the development of railway infrastructure through Liberia. The company is developing a 250km railway line from Yekepa to Buchanan and developing the iron ore terminal at Buchanan port to a capacity of 15mpta. The shortest route through Guinea for the Simandou deposit is Conakry, which is 800km away, as compared to 350km to the port of Buchanan in Liberia. The World Bank estimates that that the cost savings of going through Liberia are roughly US\$1 billion over a twenty year period (US\$3.49 per ton via Conakry versus US\$1.22 per ton via Buchanan) when the full lifecycle costs of running the two alternative railroads are taken into account.
- **Eskom** undertook a Sustainable Development Value Assessment on its operations, including new build programs, to understand the extent to which their activities contribute towards South Africa's development agenda and societal value creation as a whole. The Social Return on Investment (SROI) assessment of the Medupi Power Station showed

that 80% of projects selected are generating a positive return, with the social return being greater than the initial investment. The assessment indicates that Eskom achieved an overall SROI of R2.36 for every South African Rand(R) invested in socio-economic development projects around Medupi Power Station. Infrastructure road building projects generated the highest SROI ratio of R3.72; second was health with an SROI of R3.36; education delivered R2.81; and enterprise development returned R2.05.

- The Nacala Logistics Corridor will connect the Moatize Coal mine in northern Mozambique by rail to the deep-water port at Nacala. The agreement for the US\$4.4 billion project, signed by joint venture partners **Vale** and Mitsui in 2014, will upgrade existing railway tracks and construct new ones for handling current and future cargo load, estimated at 22 million tons annually. Of this, 18 tons are for coal transport and 4 are for general cargo and shared use, including from extensive agricultural development in the region that will be made possible through new access to export markets. The railway also passes through landlocked Malawi, connecting it more directly to overseas export markets.



- **AkzoNobel** Decorative Paints has developed exterior wall paints that reflect more infrared light to reduce heat absorption and reduce energy consumption. A research program in the UK to explore strategies to increase the solar reflectivity of exterior paints has led to the development and launch of Dulux Weathershield SunReflect exterior paint in India and Dulux Weathershield KeepCool exterior paint in Singapore and Malaysia. Tests conducted by the Center for Energy Studies and

Research, an Indian government agency, showed the new paints reflect up to 90% more infrared radiation than comparable exterior paints. With the SunReflect technology, the interior of residential buildings will be considerably cooler, which can lead to significant power savings on air conditioning. According to Building System and Diagnostics Pte. Ltd., an independent consultancy in Singapore, energy savings may be as much as 10% for a typical 15-story building and 15% for a bungalow.

SDG 10

Reduce inequality within and among countries



10 REDUCED INEQUALITIES

OPPORTUNITIES FOR SHARED VALUE

- Contribute to the development of increased access to **energy in fragile communities**, driving local economic development and contributing to reduced instability, while also investing in a growing future customer and supplier base.
- Use **impact assessments** to understand how operations in remote areas can be designed to reduce inequality, thereby enhancing companies' social license to operate and reducing conflict risks.
- Incorporate special considerations into local skill development and procurement initiatives which take into account the needs of **historically marginalized groups** in areas of operation (e.g. indigenous populations).
- *Pay staff a **living wage** and encourage other companies within value chain to also pay living wages.*
- *Adopt **equal opportunity** policies prohibiting discrimination in all forms and encourage others in the value chain to do the same.*

LEADING BY EXAMPLE

- **BHP Billiton** awarded over US\$73 million in Western Australian Iron Ore Indigenous Business Contracts during 2015, assigning over US\$400 million in contracts over the past three years. Indigenous contracting is built into many of the mining majors' Reconciliation Action Plans and indigenous engagement strategies. The company requires contractors to have a certain level of capacity and, with many indigenous businesses still growing, joint ventures are often the best option for indigenous businesses to win high-profile work and to build their capacity. Additionally, the company has provided over 145 traineeships and apprenticeships during this period and currently employs over

940 people identifying as Aboriginal or Torres Strait Islanders.

- **Eskom** supports the Government of South Africa's socio-economic development objectives, including broad-based black economic empowerment (B-BBEE), by maximizing local supplier development in a manner that supports Eskom's business plan. Eskom has built local capacity in the sector, for example, by signing supplier development and localization agreements and Power Purchase Agreements with independent power producers to meet demand requirements and diversify the energy mix. Since the inception of its Competitive Supplier



Photo: Tran Thi Hoa/World Bank

SDG 10

Reduce inequality within and among countries



10 REDUCED
INEQUALITIES

Development Program in 2008, Eskom has had a significant impact on local development through the establishment of several good practices. These have involved the addressing of multiple local development goals in contracts, incorporating local development targets at a contract sign-off stage, actively assisting suppliers to find development opportunities local to construction sites, and placing a large emphasis on the use of local businesses, B-BBEE suppliers and local labor.

- In 2016 **K+S Aktiengesellschaft** symbolically commissioned the start of Legacy, a potash project in the province of Saskatchewan in Canada, where a relatively large indigenous group of people (mainly First Nations and Métis) live. When awarding contracts or appointing employees, the company strives to take greater account of indigenous people, visible minorities and also women. By the end of 2015, approximately CAD250 million in contracts had been awarded to companies with a large component of indigenous ownership or

involvement. Additionally, during the construction phase, approximately 200 to 300 descendants of the original inhabitants have worked and, in some cases, are still working for contractors. Approximately 7% of K+S Potash Canada's employees are of indigenous origin, and the company aims to build on this foundation by working with First Nations employees and contractors to find qualified indigenous people for permanent positions. An agreement has been reached with the neighboring tribal council in order to identify suitable candidates.



SDG 11

Make cities and human settlements inclusive, safe, resilient and sustainable



11 SUSTAINABLE CITIES AND COMMUNITIES

OPPORTUNITIES FOR SHARED VALUE

- Strive to ensure the **power grid is resilient** to peak demand, security attacks and extreme climatic events.
- Collaborate with governments to inform planning around new **human settlements** arising from new extraction or production facilities, including provision of basic services and infrastructure, and mitigate any negative impacts.
- Collaborate with municipalities and property developers to ensure **housing for employees** is adequate, safe and affordable.
- Develop responsible plans for recovering and **restoring land** once the extraction site is closed, ideally before commencing resource extraction.
- Proactively engage with local communities from the outset of site development, to identify and mitigate impacts on sites with strong **cultural, historical or archaeological significance**.
- Develop products which improve the **energy efficiency** of homes and offices and their ability to track and control their energy usage over time (e.g. smart metering, micro-grid technology, etc.)
- Explore opportunities to **source raw materials and energy** from large scale recycling projects in urban areas.

LEADING BY EXAMPLE

- Designed by **ENGIE** and SUEZ Environment in partnership with the local authority of Courbevoie, Cit'Ease™ is an interactive control panel that centralizes every type of urban data from energy to water, waste, mobility, noise, security and the living environment. It aims to offer councilors, technical managers and local stakeholders an overview of every aspect of every urban issue to enable more effective management of the city. Working through the ENGIE Research and Innovation City and

Building of Tomorrow program, CRIGEN focused on building the strategic indicators and tools required to gather and cross-reference the mass of data that provides input for the Cit'Ease™ solution. The purpose of this collaborative service is to convert the mass of raw data into efficient applications designed to meet the needs of individual users. In this way, it will be possible to compare energy consumption district-by-district in order to take effective action where discrepancies are revealed.





11 SUSTAINABLE CITIES AND COMMUNITIES

- Based on carbon fiber application techniques and resin development, **Mitsubishi Chemical Holding** has developed a carbon fiber fabric, 'Replark TM', for repair and strengthening of concrete structures. In view of the recent increasing need for repair and strengthening of deteriorated structures, Replark TM is highly commended for its high strength, light weight, excellent durability and ease of application to structures such as bridge columns, road deck slabs, columns, chimneys, etc. Dealing in high strength grade (10 times stronger than steel) as well as ultra-high modulus grade (3 times stronger than steel) of carbon fiber achieves effective strengthening construction works.
- **AkzoNobel** launched the Human Cities initiative highlighting its commitment to improving, energizing and regenerating urban communities across the world. The company thinks cities across the world should be focusing on a number of key issues in order to create more 'human' urban environments considering color, heritage, transport, sport, education and sustainability. One of the goals of this program is to create a replicable and economically sustainable new methodology that takes citizens' needs as a starting point. Deliverables of the initiative include the demonstration of a replicable model of Public Private Partnerships, proof of concept for creating conditions for inclusive sustainable business cases, a multiplier of the

pre-competitive public funding (by mobilization of private funding for the projects) and a model for impact assessment.

- **Galp Energia** partnered with Vivapower to replace conventional traffic light bulbs in Lisbon Portugal with LED technology. The goal of the project was to reduce the city's energy bill, while at same time increasing road safety. The initiative is expected to save the city's administration EUR850,000 a year in energy costs. The installation of 20,000 new lamps in the 8,500 traffic lights is also expected to make Lisbon's streets much safer by increasing the visibility of traffic lights.
- **British Gas** (owned by Centrica plc) and Southampton City Council have entered into a partnership to deliver Britain's largest ever energy efficiency improvement project, aiming to provide affordable warmth to tenants in low income housing. The £27 million scheme will see 1,500 homes across the city receive improvements ranging from new windows and heating controls to new roofs and external wall insulation. These improvements will reduce costs for customers, improve the external appearance of the buildings, and deliver lifetime carbon savings of around 126,000 tons from reduced energy consumption. In addition, British Gas is leading the mandatory smart meter roll-out across the United Kingdom,



having installed 2.5 million in homes and businesses since 2009, with priority given to its vulnerable customers. Smart meters enable accurate billing and help customers explore their energy use and costs in real-time, allowing for more informed choices that can reduce bills.

SDG 12

Ensure sustainable consumption and production patterns



12 RESPONSIBLE
CONSUMPTION
AND PRODUCTION

OPPORTUNITIES FOR SHARED VALUE

- Set and meet **science based carbon emission targets** and improve operating and product efficiency. Mechanisms will vary significantly within the ENRC industry but may include: increasing energy efficiency and increasing share of energy from renewable sources; eliminating flaring; managing methane emissions; and minimizing use of trucks and other CO₂ emitting vehicles in production and distribution.
- Develop and implement improved processes to **reduce inputs** (e.g. raw materials, water and nonrenewable minerals, etc.) and minimize waste and effluent resulting from production.
- Whenever possible, collect previously used materials and **repurpose** them instead of extracting raw materials.
- Put an appropriate internal **price on carbon** (where no regulatory carbon price yet exists) and use it to inform investment decisions.
- Link C-Suite **remuneration** to energy mix and greenhouse gas emission mitigation targets.
- Expand existing **bio-based technologies**, products and services within the chemicals, gas and utilities sectors, incorporating use of bio-alternatives in products, increasing use of biomass in energy generation and expanding the use of biofuels in transportation.
- Develop and apply common **standards and methodologies** for measuring and improving sustainability across the whole life cycle of products and across the ENRC value chain.
- Develop environmentally sound processes for **management of chemicals and all waste** throughout their lifecycle.
- Source materials with **lower embedded energy**.
- Facilitate the transition to more **sustainable consumer consumption**, including investment in infrastructure and research for fuel-cell vehicles (e.g. electric or hydrogen powered) and alternatives to single use plastics.



Photo: Curt Carnemark/World Bank



12 RESPONSIBLE CONSUMPTION AND PRODUCTION

LEADING BY EXAMPLE

- **AkzoNobel** set a target to reduce its carbon emissions by 25-30% per ton of sales between 2012 and 2020 throughout the entire value chain. The company works with its suppliers to drive down upstream emissions, in which bio-based raw materials continue to play a role. For example, AkzoNobel's partnership with Photanol focuses on creating sustainable technology which mimics the way plants use photosynthesis. In 2015, AkzoNobel sourced 38% of its energy from renewable sources, with a target to increase this share to 45% by 2020. To further reduce its operational emissions, the company aims to improve its Operational Eco-Efficiency, which includes energy and greenhouse gas emissions, by 40% by 2017 from 2012. From a downstream perspective, AkzoNobel has a strong focus on developing solutions that allow customers to reduce their carbon emissions. One such example is Intersleek, an antifouling paint which makes ships' hulls smoother, resulting in less drag, which means less fuel is needed with fewer carbon emissions.
- **BP** has designed its Khazzan project in Oman, which delivers around 1.5 billion cubic feet of gas per day - about 40% of Oman's total daily domestic gas supply, to be an inherently low-emission concept.

BP has built a central processing facility to remove water and condensate from the gas produced at all well sites to create market quality gas. Centralized gas processing takes away the need for processing equipment at each individual well site, which can be a source of additional methane emissions in gas production. Additionally, the processing facility at Khazzan is powered by the gas produced, and provides electricity that powers well-site equipment such as valves and pneumatic devices. This reduces the amount of methane emitted - especially when compared with remote tight gas development projects that use natural gas as their power source. If the sites are too remote to connect to the central facility, BP installs solar panels to power equipment. The Khazzan central processing facility is twice as efficient as a typical oil and gas field - thanks to the ability to use recycled waste heat from the gas turbines elsewhere at the facility.

- To promote the spread of fuel cell vehicles, **Taiyo Nippon Sanso Corporation** (TNSC) is promoting the sale of the Hydro Shuttle packaged hydrogen refueling station it developed in 2013, and strengthening R&D for further reducing the cost of hydrogen refueling stations. TNSC has integrated the dispenser, pre-cooling device, compressor,



and storage vessel — the four major devices that comprise hydrogen stations — into a single unit, thereby significantly reducing fabrication and installation costs. TNSC has also managed to lower the cost and reduce the size of the dispenser and pre-cooling device (able to cool hydrogen up to the temperature of -40°C). The compressor uses an air-driven booster system while a Type IV CFRP

vessel (the entire circumference of the plastic-lined vessel is wrapped in carbon fiber and possesses great strength) was chosen for the storage vessel. The cost of each device was reduced to just half of the previous model.



12 RESPONSIBLE CONSUMPTION AND PRODUCTION

- **Goldcorp's** Tailings Stewardship Strategy ensures best practices in tailings storage facilities and helps Goldcorp retain a leadership position in mine waste management. All the company's operating sites underwent tailings risk assessments in 2015. These programs serve to strengthen the company's social license to operate by establishing standards and consistency and enhancing community acceptance. Tailings stewardship ensures planning, design, construction, operation and closure of tailings storage and water retention facilities will be carried out in a manner such that: structures are physically stable under all anticipated conditions; solids and water are managed within designated areas; facilities meet or exceed regulatory or standard engineering guidelines; facilities are chemically stable so that the quality of any seepage or surface runoff does not endanger human health or the environment; and facilities can be closed in a manner that is compatible with the surrounding land use and that will have a manageable impact on the environment.
- Ten years ago, two of **Statoil's** subsea oil fields at Åsgard in the Norwegian Sea were near closure because the reservoir pressure was too low to allow continued production. Building a modern new compression platform would have resulted in additional CO₂ emissions of about 90,000 tons per year. In 2015, Statoil instead completed a ground-

breaking project, together with Aker Solutions, creating the world's first subsea gas compressions operation. The technology has extended the reservoir's life to 2032, boosted oil recovery and reduced carbon intensity from 16kg to 9kg of CO₂ per produced barrel of oil equivalent. Over the fields' lifetime, the avoided emissions will amount to around 1.4 million tons.

- **Vattenfall AB** is developing Social Life Cycle Assessments in order to expand the scope of its Environmental Product Declarations (EPDs). All electricity provided by Vattenfall in Sweden is currently EPD labelled. An EPD is based on life cycle assessments (LCA) which identify environmental impacts in the whole energy value chain. EPDs enable Vattenfall AB to identify negative and positive impacts upstream, in its own production and downstream. Vattenfall uses this information to work with suppliers to reduce their negative impacts. Downstream, Vattenfall AB uses the information to provide customers with the opportunity to choose an energy product with a lower environmental impact. In 2015, Vattenfall published its first pilot of a social LCA, an innovative method which aims at mitigating negative social impacts in the energy value chain. Vattenfall is currently working with other organizations to develop social LCA so that they can be integrated into EPDs.



SDG 13

Take urgent action to combat climate change and its impacts



13 CLIMATE ACTION

OPPORTUNITIES FOR SHARED VALUE

- Set **science based carbon emission targets** in line with the sectoral decarbonization pathway and relevant country pledges in relation to the Paris Climate Agreement and other climate partnerships, and encourage suppliers, service providers, customers and other stakeholders in the ENRC value chain to do the same.
- Set an **internal price on carbon** in line with a 2-degree Celsius pathway, and align other corporate policies and strategies to address contribute to relevant national and international climate change targets.
- Invest in research and development of improved methods of **carbon capture and storage**, including terrestrial carbon sinks such as forests together with other secure storage systems such as saline aquifers.
- Research and develop scalable **carbon capture and usage** solutions including innovations around production of cement, algae-based fuel and carbon fiber.
- Design and implement natural **disaster risk mitigation**, preparedness, response and recovery plans at mines, oil extraction sites, power generation facilities, manufacturing sites and related infrastructure in high-risk locations.
- Identify and evaluate other **climate change risks** to the business (such as resource scarcity, resource price volatility, loss of life and property, and business interruption) and take appropriate mitigating and adaptive action.
- Support carbon **trading schemes** and purchase carbon credits to offset emissions.
- *Take steps to **measure, reduce and report climate exposure** and progress on actions to confront climate change on an annual basis, continuing to increase the level of transparency and consistency of reporting across the industry sector.*
- *Support high level partnerships and industry associations **advocating** for responsible public policies on climate, including carbon pricing and trading schemes.*



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13 CLIMATE ACTION

LEADING BY EXAMPLE

- **Gulf Petrochemical Industries Company** (GPIC) commissioned a Carbon dioxide recovery unit (CDR) in 2009 with the objective of recovering 450 tons per day of carbon dioxide from being released directly into the atmosphere. The Carbon dioxide from the flue gas of the methanol plant reformer is recovered to make up for the shortage of carbon dioxide for the synthesis of methanol. In addition, its urea plant utilizes the carbon dioxide from the CDR unit to increase its urea production. The commissioning of the project has resulted in the recovery of 0.12 million tons of carbon dioxide on an annual basis. The CDR unit alone has managed in the reduction of approximately 0.70 million tons of carbon dioxide since 2009.
- In June 2015, six major oil companies (including **BG Group, BP, Eni, Royal Dutch Shell, Statoil** and **Total**) wrote an open letter to governments and the United Nations saying that they can take faster climate action if governments introduce carbon pricing systems where they do not yet exist at the national or regional levels and eventually link it all up into a global system that puts a proper price on the environmental and economic costs of greenhouse gas emissions. The letter stated "Our companies are already taking a number of actions to help limit emissions ... For us to do more, we need governments across the world to provide

us with clear, stable, long-term, ambitious policy frameworks. We believe that a price on carbon should be a key element of these frameworks."

- At the Paris Summit, **IBERDROLA** outlined the role of electricity in the global challenge to not exceed 2 degrees of warming. The company's anti-climate change strategy is based on 6 pillars including: preventing pollution by gradually reducing greenhouse gas emissions; supporting international negotiations and the significant involvement of the private sector to global climate goals; holding on to the position as global leader in renewable energy and investment in and operation of smart grids; actively fostering a culture that promotes the efficient and responsible use of energy; and promoting internal employee training and encouraging suppliers to adopt appropriate policies. The company has set itself the environmental target of reducing its CO₂ emissions intensity to below 30% and 50% in 2020 and 2030 respectively compared with the company's specific emissions in 2007. It also aims to be carbon neutral by 2050.
- **Agrium** has been a leader in developing the 4R based Nitrous Oxide Emission Reduction Protocol (NERP), adopted to reduce GHG emissions resulting from nitrogen applications at the farm level. The protocol is globally scalable and it is currently being regionally customized to consider each region's





13 CLIMATE ACTION

unique climate, soil, farming practices and culture. While the potential of this solution is still being quantified, early estimates of emission reduction from nutrient stewardship practices exceed 8 Mt in North America alone. The protocol quantifies these nitrous oxide reductions, which are then traded where carbon offset markets exist or they are used in voluntary value chain programs to deliver on stakeholder commitments to improve sustainability performance. Development of new 4R source, rate, time, and place best management practices through new innovations in precision agriculture, controlled release fertilizers, data management and validation will further optimize these reductions while increasing local jobs and economic returns.

- **Sumitomo Chemical** recently developed CO₂ separation technology signifying an important step forward towards fostering a CO₂ membrane separation business which helps integrate sustainability into the company's core business strategy and customer value proposition. CO₂ separation technology is currently mainly used in hydrogen production and natural gas refining to remove CO₂ from gas streams. This technology will also be in demand as the development of carbon capture and storage technologies creates increased demand for technologies that reduce

costs for CO₂ separation and capture. With further development of this technology being undertaken for many potential applications, the company will continue to develop technologies that contribute to solving environmental problems and promoting more effective use of energy globally.

- **Amec Foster Wheeler** has developed a weather forecasting and met-ocean service line that mitigates financial and safety risk for clients whose businesses are sensitive to high impact weather events or severe ocean conditions. Forecasting and consulting services to industry and government clients are delivered on a 24/7 basis anywhere in the world. Key customers include governments, oil and gas companies, energy companies, insurance providers, and water conservation authorities. The company's personnel, forecasting systems, weather instrumentation, and research and development have allowed Amec Foster Wheeler to achieve an industry leading level of accuracy. Services include: Air quality forecasting and modeling; Climate change studies; Deep and shallow water coastal sea state modelling; Energy demand forecasting; Marine weather and sea-state forecasting; Severe weather forecasting (thunderstorms, hail, hurricanes, etc.); Storm surge and tsunami modeling, among others.



SDG 14

Conserve and sustainably use the oceans, seas and marine resources for sustainable development



14 LIFE
BELOW WATER

OPPORTUNITIES FOR SHARED VALUE

- Research, analyze and **value natural marine capital** and ecosystem services and use these values in strategic and operational decision making, impact monitoring and assessment, internal management reporting and external integrated reporting.
- Take increased safety precautions to **avoid leaks, contamination and pollution** and implement robust plans to minimize damage to marine life and habitat (including consideration of downstream impacts), particularly in relation to underwater extraction sites and mine tailings disposal.
- Develop **early warning**, preparedness and remediation strategies to rapidly identify, contain and remediate marine accidents and damage.
- Where production sites are operating near coastlines or large bodies of water, establish marine conservation areas and contribute to **research and planning** for protection of marine life, as well as human livelihoods dependent on these ecosystems.
- Implement **improved waste treatment systems** to avoid releasing pollutants into the natural environment which could filter back to the oceans and seas.
- Ensure supplier and distributor companies shipping goods by sea adhere to **environmental standards on marine shipping**.

LEADING BY EXAMPLE

- **Hera**, a multi-utility company which operates in the distribution of gas, water, energy, and waste disposal in Italy, has launched a Seawater Protection Plan in Rimini, aiming to eliminate swimming bans in public waters and reduce the pollution impact (measured in COD) by 90% by 2020.

The plan includes 11 measures, with an overall investment of over EUR154 million. This innovative project involves the structural modification of sewage systems and treatment plants, which will solve the environmental problem caused by waste discharged into the sea. This rehabilitation

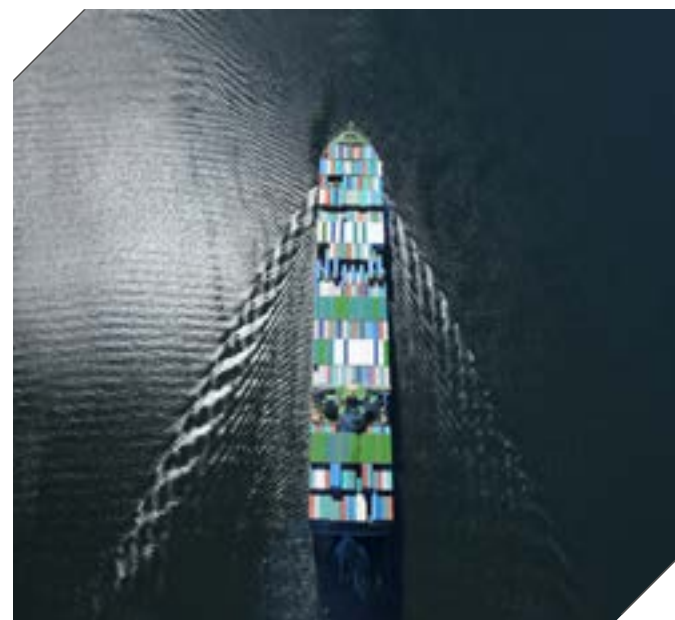


Photo: Edwin Huffman/World Bank

SDG 14

Conserve and sustainably use the oceans, seas and marine resources for sustainable development



14 LIFE
BELOW WATER

project, the first of its kind in Italy, is of fundamental importance for the city of Rimini and for the entire province, where the current sewage system is not sufficient to hold all the wastewater produced. The project is progressing to plan, with five construction sites closed and four construction sites active.

- **Eni** is developing the CUBE system based on a proprietary and patented technology to respond to unforeseen oil spills at sea. CUBE was designed to be the last line of defense if a blow-out (the uncontrolled spewing of oil from a well) is not intercepted in time with standard emergency systems. A 1:4 scale model has been designed and is made for the collection and separation of gas from water and oil near the wellhead on the sea floor. The prototype, now patented due to a number of innovative solutions, has been subject to successful tank tests with a rate of up to 10,000 bbl/day of fluid.

- **Amec Foster Wheeler** carried out a project with the European Space Agency using satellite data to assess whether satellite Earth Observation (EO) technology could effectively be used to assess the health of water bodies. The project analyzed water quality changes over time at Cardiff Bay (Wales, UK) and Florida Bay (off the southern tip of the US state). Results showed that EO-image derived maps could provide a good overview of changes in optically apparent water-quality parameters over time, which can be particularly useful in demonstrating impacts to multiple stakeholders in a non-technical format. The results of the EO project could hold great promise in the realm of sustainability, as functional freshwater ecosystems are relied upon for human and agricultural needs, as well as for wildlife preservation, fisheries production and recreation.



Photo: Edwin Huffman/World Bank

SDG 15

Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss



15 LIFE
ON LAND

OPPORTUNITIES FOR SHARED VALUE

- Research, analyze and **value natural capital and ecosystem services** and use these values in strategic and operational decision making, impact monitoring and assessment, internal management reporting and external integrated reporting.
- In collaboration with governments and civil society, design and implement programs to **protect biodiversity or implement biodiversity offsets** in the areas surrounding the company's operations, and to avoid, mitigate and manage risks to local ecosystems, working towards no net loss of biodiversity and preferably a net gain.
- Contribute to **research and planning** for biodiversity initiatives in critical ecosystems located within countries of operation.
- In the forestry sector, adhere to the Forest Stewardship Council Principles and Criteria, participate in the Forest Disclosure Project, avoid converting **natural forests** to wood plantations, avoid burning, and avoid negative impacts on High Conservation Value Forests or primary tropical moist forest.
- Adhere to all relevant **international environmental standards** including the IFC Performance Standards (e.g. Standard 6 where operations impact upon Protected Areas or Critical Habitats), ILO Codes, and the Ramsar Convention on Wetlands of International Importance.

LEADING BY EXAMPLE

- **Sumitomo Corporation** participated in the world's largest nickel mine development project in Madagascar, the Ambatovy Project, together with Sherritt International and Korea Resources Corporation. Various comprehensive conservation

programs have been implemented to mitigate impacts and conserve the remaining pristine natural environments in Madagascar. These include establishing a buffer zone around the mine footprint for forest conservation and safe migration



Photo: Curt Carnemark/World Bank

SDG 15

Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss



15 LIFE
ON LAND

of animals into adjacent areas, propagation of plants for future restoration of the footprint, and avoidance of critical habitat by rerouting or tunneling the pipeline. The project is dedicated to the highest environmental standards in collaboration with the Madagascar government and other local and international experts such as Conservation International, Duke Lemur Center, Missouri Botanical Garden and national NGOs. In addition, as the first pilot project of the Business and Biodiversity Offsets Program, the implementation of offset activities is also underway to achieve 'No Net Loss and preferably a Net Gain of biodiversity' by conserving areas of land up to approximately 9 times the size of the mine area that contains similar biodiversity.

- **Syngenta**, together with the United Nations Convention to Combat Desertification (UNCCD), has developed the Soil Leadership Academy. The Academy aims to strengthen international policy, decision-making and frameworks for soil conservation and sustainable land management. It acts as knowledge broker and is building a network that links research institutes, universities and key decision-makers, offering information and training opportunities to policymakers and land stakeholders

worldwide. In 2015, the Academy successfully ran its first policy development simulation exercise on Land Degradation Neutrality for national policy makers at the UNCCD COP 12 in Turkey. Syngenta's ambition is to bring greater food security in an environmentally sustainable way to an increasingly populous world. The company's Good Growth Plan (www.goodgrowthplan.com) sets targets focused on boosting resource efficiency, rejuvenating ecosystems and strengthening rural communities.

- **Statoil** supports research programs to increase knowledge about ecosystems and biodiversity, and collaborates with industry peers to share knowledge and develop tools for biodiversity management. At the company's Leismer project, Statoil is implementing a mitigation and monitoring program to reduce the effects of its activities on local woodland caribou, which is categorized as a threatened species. After clearing land for its Marcellus project, Statoil worked with the United States Fish and Wildlife Service to offset the impact by purchasing 359 acres of land for endangered bats in perpetuity. Fish and Wildlife Service since adopted this approach as a template for future conservation programs. Finally at the company's Dudgeon site, it implemented measures to protect

great crested newts, waterwolves and other protected species when installing an onshore high voltage cable.

- **National Grid** is working in partnership with the Worcestershire Wildlife Trust at its 400Kv substation in Feckenham to develop sustainable land management plans that enhance the biodiversity of the area. The substation sits in the heart of the living landscape and is surrounded by a multitude of habitats including small meadows, young woodland, ancient hedgerows and a large lake all supporting an abundance of flora and fauna. Through proactive engagement with stakeholders including the Worcestershire Wildlife Trust, Butterfly Conservation and the resident farmer, key priorities were established to reflect the most valuable features within the site. One of which was the ancient hedgerows that provided a haven for the Brown hairstreak butterfly, a UK priority species found only in this area of the East Midlands. This project has identified opportunities to work with the local community, as well as enhancing ecological connectivity on a wider scale by working with neighboring land managers. A number of activities have been delivered including hedgerow restoration, habitat creation, scrub management as well as a

continued program of monitoring and surveying. The success of this project demonstrates how National Grid can make a positive contribution to local and regional ecological objectives, whilst also delivering business benefit.

- **Gold Corp's** goal is to develop, operate and close its mining properties in a sustainable manner. Biodiversity factors into plans prior to mine construction, through operations and after closure. Every operation has an environmental closure plan in place, which includes reclamation strategies that will leave healthy, thriving ecosystems with productive, useful land for local communities. In 2015, El Sauzal was the first mine to demonstrate its successful decommissioning in accordance with the International Cyanide Management Code.

SDG 16

Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels



16 PEACE, JUSTICE
AND STRONG
INSTITUTIONS

OPPORTUNITIES FOR SHARED VALUE

- Conduct human rights **impact assessments** before, during and after operations are established and closed.
- Enhance **community engagement** and social impact assessments to prevent and mitigate conflict issues arising from investments in the oil, gas, hydropower, and minerals sector.
- Enhance **accountability** for environmental stewardship including post-extraction clean-up.
- Engage with local governments to address **instability** and conflict in areas of importance for extractives industries.
- Avoid transactions which would displace **indigenous people** unless they have provided free, prior, informed consent.
- Achieve certification that extracted minerals are **conflict free** and implement supply chain reviews for conflict mineral use.
- **Increase transparency** by going above industry standards and reporting publicly on costing of services, payments to governments in the form of taxes and royalties, sustainability performance and other climate change initiatives, in line with the Extractive Industries Transparency initiative (EITI).
- Design and implement a robust **anti-bribery and corruption** compliance program.
- *Demonstrate ethical leadership by publishing a **statement on human rights** consistent with the UN Guiding Principles on Business and Human Rights and sign up to the ten principles of the UN Global Compact.*



Photo: Curt Carnemark/World Bank



16 PEACE, JUSTICE AND STRONG INSTITUTIONS

LEADING BY EXAMPLE

- BHP Billiton** is committed to the role transparency plays in contributing to the governance of natural resources for the benefit of the governments and citizens of host countries. BHP Billiton has been a member of the EITI since its inception and it voluntarily goes above minimum industry standards by publically reporting on a range of topics including: payment of taxes and royalties, sustainability performance that is independently verified, and climate change portfolio analysis. In addition, the Natural Resources Governance is a Global Signature Program of the BHP Billiton Foundation. Signature projects include a two year US\$2.5 million partnership with Transparency International to deliver the 'Mining for Sustainable Development (Phase 1)' project and a two year US\$2.8 million partnership with the World Bank delivering the 'From disclosure to development' project. Through these global partnerships targeting improvements in governance and transparency, BHP Billiton commits, collaborates and joins in the global fight against corruption and the promotion of ethical business conduct.
- AkzoNobel** not only pursues business activities of a circular nature, but also quantifies its efficiency in generating value across the full value chain. This is done by means of a Resource Efficiency Index, a unique indicator expressed as gross margin divided by cradle-to-grave carbon footprint, expressed as an index. To gain a deeper understanding across the value chain of its environmental, human, social and financial impact, AkzoNobel launched a four-dimensional profit and loss (4D P&L) accounting pilot in 2014. In 2015 the scope of the study was expanded and the methodology further refined. The 4D P&L is a new way of looking at an economy, where the impact of a company on society at large can be assessed. It allows for holistic decision making across all four capitals, helping to create more value from fewer resources.
- Social sustainability is a growing area of focus for **Neste**. For example, in 2015, the company partnered with BSR to conduct a labor rights study in Malaysia, with BSR helping the company navigate complex labor migration issues within Neste's supply chain. The company also organized a two day workshop to address social and labor issues in the palm oil industry in Malaysia, bringing together palm oil suppliers and a variety of experts to share knowledge on labor issues in the palm oil industry and to improve labor practices. The workshop focused on working conditions, ethical recruitment, child labor, and workers engagement and grievance systems. The situation of migrant workers was also addressed. Additionally, in 2015 Neste's Executive Board adopted a Neste Human Rights Commitment for the entire Group. Practices such as these led the company to be recognized as a leader in the Dow Jones sustainability index for Labor and Human Rights.
- Towards Sustainable Mining (TSM)** is the Mining Association of Canada's commitment to responsible mining. To drive accountability, participation in TSM is mandatory for all Mining Association of Canada members. To ensure transparency, members commit to a set of guiding principles and report their performance against the program's 23 indicators annually. Assessments are conducted at the facility level where the mining activity takes place and results are publicly available, and are externally verified every three years. Members demonstrate leadership by engaging with communities, driving world-leading environmental practices and committing to the safety and health of employees and surrounding communities. TSM includes (inter alia) an Aboriginal and Community Outreach protocol consisting of four performance indicators that seek to confirm that mining facilities have developed and implemented formal processes for engaging with communities of interest, including Aboriginal communities and organizations, affected or perceived to be affected by their operations or that have a genuine interest in the performance of a facility.

SDG 17

Strengthen the means of implementation and revitalize the global partnership for sustainable development



17 PARTNERSHIPS
FOR THE GOALS

OPPORTUNITIES FOR SHARED VALUE

- **Share geo data** with governments and other industry stakeholders to support industry development and capacity building.
- *Strengthen the link between corporate and societal value creation and align the organization's value creation strategy to the Sustainable Development Goals.*
- *Adopt good practice principles and guidelines which better align business practices with sustainable development.*
- *Engage in multi-stakeholder initiatives advancing sustainable development.*
- *Establish a robust impact measurement framework for corporate, multi-stakeholder partnership and industry level contributions to sustainable development including regular monitoring and transparent evaluation and reporting.*
- *Collaborate with other energy, natural resources and chemical companies and stakeholders to provide industry perspectives to Governments, policymakers, legislators and regulators on the sustainable development impact of legislative, regulatory and tax frameworks including recommendations for improvement.*

LEADING BY EXAMPLE

- **DONG Energy** has established around 100 climate partnerships with businesses, local authorities and public institutions. The company works with its partners to reduce their energy use, to support investments in renewable energy and to share knowledge. By helping DONG Energy climate partners save energy, they lower both costs and CO₂ emissions. The money saved can be wholly

or partially spent on certified green power (e.g. offshore wind) to convert all or part of their remaining power consumption with renewable energy. The company's climate partners include companies such as Novo Nordisk, Daloon, KMD and Tivoli.



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SDG 17

Strengthen the means of implementation and revitalize the global partnership for sustainable development



17 PARTNERSHIPS
FOR THE GOALS

- The Abu Dhabi Regulation and Supervision Bureau partnered with **BP** in 2014 to model demands on energy and water resources until 2030. This was done using the newly developed 'Foreseer' modelling tool which was developed by the University of Cambridge through BP's Energy Sustainability Challenge research program. The foreseer tool creates a visualization of natural resource life cycles and their interconnectivity in the context of future demand scenarios, technology improvements and policy choices in a region of interest. The tool will provide Abu Dhabi's policymakers with valuable insights into the complex relationships between energy, land and water, and support them in their decision-making processes to facilitate sustainable development.
- **Dow Chemical Company's** ambitious 2025 Sustainability Goals seek to redefine the role of business in society by helping lead the transition to a sustainable planet and society. The company is committing to leading the development of societal blueprints that facilitate the transition to a sustainable planet and society, as well as

to breakthrough innovations that aim to deliver a six-fold net positive impact on sustainable development. Dow is developing six projects to demonstrate advancing a circular economy, and committing to US\$1 billion of value through projects that are good for business and good for nature, as the company values ecosystem services in its business decisions. The company aims to increase confidence in the safe use of chemical technology through transparency, dialogue, unprecedented collaboration, research and its own actions.



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