



Sustainability policy is a form of modernisation policy

Report published by the Federal Ministry for Economic Affairs and Energy accounting for its implementation of the German Sustainable Development Strategy

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1 Introduction

This report is the first to provide a full overview of the contribution made by the Federal Ministry for Economic Affairs and Energy (the Ministry) to the implementation of the German Sustainable Development Strategy.

The objectives of the strategy, which is based on the Agenda 2030, are clearly defined and relate to combating poverty and hunger, to promoting healthcare and education, to combating climate change, protecting oceans and ecosystems on land, but also to improving the supply of energy and water, providing for safe mobility and adequate infrastructure, and to achieving full employment.

None of these objectives can be reached without innovative processes and technologies, in short: without modernisation. Whether it is renewables or energy efficiency, supply chains in the commodities sector or resource efficiency, low-emissions transport or sustainable manufacturing technologies – they all depend on marketable innovation for progress. This is true of manufacturing as much as of services. Digitisation is the horizontal trend forming the basis for this much-needed innovation, together with targeted funding for innovation.

This also means that sustainability policy can be construed as being, first and foremost, modernisation policy. The Federal Ministry for Economic Affairs and Energy makes a key contribution to this across many different policy areas. This is true of the action being taken to implement the energy transition and to promote technical innovation, the work on a regulatory framework that allows SMEs and industrial companies to thrive, the ministry's contributions to trade and European policy, and also overall, given that the Ministry's political work is guided by the principles of the social market economy. This means that the Ministry operates within the triangle that opens up between three over-arching objectives: economic prowess (with a special focus being placed on long-term, sustainable success), social justice and environmental accountability.

In the following, you will first learn about the governing and coordinating structures for sustainability within the Federal Ministry for Economic Affairs and Energy. These remarks are followed by individual sections dedicated to sustainable development within each policy area, complete with descriptions of key measures that can be attributed to these (cf. overview on page 2). At the end of the report, you will find a short description of the ministry's own contribution to sustainability, for instance in its capacity as an employer.

2 Governing and coordinating sustainability policy within the Ministry

2.1 The Ministry's sustainability strategy

The Federal Ministry for Economic Affairs and Energy drew up its own sustainability strategy in 2017, drawing on the German Sustainability Strategy. This strategy mainly seeks to foster progress on the economic aspects of the Agenda 2030, promoting lasting, sustainable and inclusive growth. As always in a social market economy, the government is tasked with creating the right framework, whereas the actual economic success will largely depend on business' performance. The Federal Ministry for Economic Affairs and Energy creates the right framework for companies to be able to do business sustainably, making sure that the German economy actually makes its contribution to the Agenda 2030. There is a plethora of initiatives driven by business, including associations with mission statements to this effect and dedicated groups within business associations. Many of these initiatives have become active partners for the Ministry as it implements its strategy.

The Federal Ministry for Economic Affairs and Energy is dedicated to all the SDGs¹, but has set itself specific targets for those that the most relevant to its remit. These are SDG 7 (ensure access to affordable, reliable, sustainable and

¹ SDG: 17 Sustainable Development Goals (SDGs) were adopted as part of the Agenda 2030 at the United Nations Summit in September 2015.

modern energy for all), SDG 8 (promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all), SDG 9 (build resilient infrastructure, promote inclusive and sustainable industrialisation, and foster innovation), SDG 10 (reduce income inequality within and among countries), SDG 12 (ensure sustainable consumption and production patterns), and SDG 17 (strengthen the means of implementation and revitalise the global partnership for sustainable development).

The strategy defines fields of action, gives examples of action designed to help reach SDGs and identifies specific flagship projects initiated by the Federal Ministry for Economic Affairs and Energy. These flagship projects include the National Action Plan on Energy Efficiency (cf. 5.4) and the work to promote lightweighting (cf. 6.2).

Furthermore, the Ministry is to expand its monitoring of funding programmes and projects to include their performance in terms of the sustainable development goals. Moreover, the Institute for Employment Research (IAB) has also adjusted its Establishment Panel Survey to include questions linked to sustainability. This is to help gain a realistic and overview of companies' and organisations' performance in terms of sustainability. Whilst the Ministry's monitoring programme is still being revised, the changes to the IAB Establishment Panel Survey have already been made, with results expected to become available in 2019.

2.1.1 Ministry Coordinator for Sustainability

In May 2017, the new position of Ministry Coordinator for Sustainability was created within the ministry; a post that has since been held by Dr Steinberg, Director-General for Economic Policy.

The Coordinator can draw on the support of the task force for 'Ministry coordination on sustainability', which reports directly to him. The coordination work includes reviewing draft legislation, funding programmes and other initiatives taken by the Ministry by checking them against the targets and indicators set out in the German Sustainability Strategy, but also extends to supporting other ministries in their own work to implement the Sustainability Strategy, and to coordinating this work across ministries. Furthermore, there are regular meetings of a stakeholder roundtable with private-sector representatives. These events are an opportunity for information to be shared and for business associations to feed in their recommendations with regard to the Ministry's sustainability policy. Topics discussed at the most recent events have included sustainable finance, the Ministry's Sustainability Strategy and the circular economy. There is also a newsletter keeping its growing number of subscribers up-to-date about relevant developments and activities.

3 Economic policy

Sustainable economic growth (as mentioned in SDG 8) is the bedrock of Germany's prosperity. Sustainable growth generates growing incomes from work and secure jobs; it forms the basis for a strong welfare state and creates greater scope for the public sector to act. Germany's economic policy is guided by the principles of the social market economy, but does also not neglect environmental aspects. The social market economy places freedom and competition at the very centre of the economic system. Government is tasked with creating a level playing field whilst also providing social rebalancing and ensuring that everyone has a stake in society.

However, sustainable growth will only be achievable if there is close alignment between the various fields of policy. In this sense, economic policy is a horizontal task, with the Ministry's role being to actively support other ministries and their projects.

Let us take the example of sustainable finance, a field for which the lead responsibility lies with the Federal Ministry of Finance. The Federal Ministry for Economic Affairs and Energy is in favour of making sustainability a stronger feature of the German and the international financial systems and is therefore actively involved in the ongoing discussions on this issue. For instance, the ministry organised a high-ranking panel about the importance

of sustainability ratings and their developments, attended by representatives of the supply and demand-side of such rankings and of other ministries.

3.1 Joint Federal/Länder Task for the Improvement of Regional Economic Structures

The funding provided under the Joint Federal/Länder Task for the Improvement of Regional Economic Structures is used to support investments by trade and industry, investments in local commerce-related infrastructure, measures designed to encourage networking and cooperation between local players, and measures designed to improve competitiveness, particularly that of SMEs.

The number-one goal of the GRW is to harness each region's potential for development to create good-quality jobs and safeguard them for the long term. This is how the GRW promotes long-term growth and employment at regional level. It makes it easier for regions to go through structural change, helps stabilise regional job markets, and boosts economic growth in Germany.

The funding under the GRW is subject to review to see if its effects are lasting and sustainable, with regular verifications of the employment effects taking place after five years of monitoring, and regular evaluations.

3.2 Procurement law (sustainability aspects in the procurement procedure)

The 2016 procurement reform has given public-sector contracting authorities much greater scope for considering sustainability aspects (of a social, environmental and/or innovative nature) as part of the procurement process. However, these new rules only apply to purchases above the EU thresholds. As the vast majority of procurement procedures does not fall into this category, the Ministry decided in 2017 to take the initiative to amend the regulation applying to purchases below the threshold to allow for sustainability criteria to be considered. The new Rules of Procedure Governing Supply and Service Contracts Below the EU Thresholds give public-sector contractors purchasing services below the EU thresholds the same ample opportunity to request that certain sustainability criteria be met as is the case for purchases above the thresholds. The Rules of Procedure Governing Supply and Service Contracts Below the EU Thresholds came into force in September 2017 and are binding on the federal contracting authorities. (So far, construction services remain excluded from these greater possibilities for sustainable procurement).

The Ministry is also working with the Federal Statistical Office to create the very first procurement statistics that are based on the Procurement Statistics Ordinance (VergStatVO) and will cover the entire German public sector, complete with individual data for procurement procedures above and below the EU thresholds and the possibility to analyse the key criteria used in public-sector procurement. Our intention here is to also collect data on the sustainability criteria used in procurement proceedings, thus allowing for these aspects to be statistically reviewed. The underlying architecture and the IT system housed by the Federal Statistical Office is to be completed in mid-2019; initial results are expected to become available in 2020.

3.3 Regulatory test beds/living labs

Living labs or regulatory test beds are an instrument allowing innovative technologies and business models to be tested whilst, at the same time, allowing for regulatory learning. Dedicated legislative test clauses are used to create test beds that are limited in time and geographical scope, and that make it possible for digital innovations to be tested and smart regulation to be developed on the basis of experience gathered. Autonomous mobility, smart energy supply, eHealth, the sharing economy, and the digital public administration are all fields that lend themselves to this kind of test. Living labs help us work towards SDG 9 ('support innovation') as they make it

possible for innovative technologies and business models to be tested. Furthermore, they help strengthen Germany's position as a centre of innovation, which in turn is a way of safeguarding jobs and GDP growth.

Since 2017, the Ministry has had a dedicated working group on living labs that draws on experts from its various directorate-generals and is working on a design and implementation agenda. The objective here is to make greater and better use of regulatory test beds as a tool for innovation policy. The focus of the work is on networking with experts from the public administration, business and science, on developing a Living Lab Manual, on advocating greater use of a larger number of experimentation clauses, and on running living-lab competitions. For these purposes, an interministerial working group is to be established and an information platform set up.

Additional information: Commission for Growth, Structural Change and Employment

In May 2018, a Commission for Growth, Structural Change and Employment was appointed by the Federal Government. The mission statement for the Commission is to put together a programme of action:

- To develop specific prospects of new and future-proof employment in the regions concerned.
- To develop a mix of tools capable of delivering economic development and structural change in a way that is socially compatible and helps foster social cohesion whilst also mitigating climate change.
- To make the necessary investment in the regions and sectors affected by structural change, partly by establishing a fund for structural change that will mainly draw on federal funds (the Coalition Agreement states that regional structural policy/structural policy in connection with the phase-out of coal-mining is to be given priority, with €1.5 billion earmarked for this).
- To reach the sector-specific target for the energy industry for 2030.
- To draw up a plan for an incremental reduction and phase-out of coal and lignite-based electricity generation, complete with a phase-out date.
- To outline the action to be taken by the energy industry in order to minimise the gap with the 40% reduction target as much as possible.

The Commission is jointly chaired by former Minister President Stanislaw Tillich, former Minister President Matthias Platzeck, former Federal Minister Ronald Pofalla and Prof. Dr Barbara Praetorius. In addition, there are 24 regular members representing the relevant regions and economic sectors, civil society and science and academia. Three members of the German Bundestag, Andreas G. Lämmel, Dr Andreas Lenz und Dr Matthias Miersch, have the right to address the Commission, but not to take part in votes.

The Commission is expected to table an interim report on structural policy by the end of October 2018. The recommendations regarding energy and climate policy are to be made to the government in time for the 24th UN Climate Change Conference, and the Commission's final report is to be published by the end of 2018. The Commission convenes two to three times per month.

4 European policy

Without international cooperation, it will be impossible for the SDGs agreed as part of the Agenda 2030 to be reached. The European Union has a major role to play in this, given that it is the entity defining the framework for joint action in many policy areas.

Sustainability is a guiding principle of Union policy. This is also clearly visible in numerous EU activities and initiatives, for instance in the Action Plan on Sustainable Finance that was recently tabled by the European Commission. However, implementing the Agenda 2030 at EU level will also require a strategic framework.

The Federal Government will continue to press for an ambitious approach to be adopted with regard to implementation of the Agenda 2030 at EU level. Within the Federal Government, the Federal Ministry for Economic

Affairs and Energy and the Federal Foreign Office act as 'ministries for Europe', coordinating Germany's European policy. However, responsibility for individual fields of policy always rests with the ministry in charge of the relevant subject matter.

The Federal Ministry for Economic Affairs and Energy is also engaged in bilateral action designed to contribute to the sustainable development goals. This includes the work to coordinate Germany's twinning activities, advise the governments of several eastern European countries, and the Manager Training Programme.

4.1 Twinning

For 20 years now, twinning activities funded by the EU have made a successful contribution to sustainable development in countries neighbouring the EU. Germany has been directly involved in more than 800 of the 2,700 twinning projects that have been completed until now, making it the most active EU Member state in twinning. Under these projects, German public-administration experts have been supporting reform processes in the fields of good governance, the rule of law, human rights, economic development, environmental protection and labour standards, all of which are important objectives in terms of the sustainable development goals. A well-functioning public administration is a powerful tool for implementing action capable of changing the living conditions of present and future generations for the better.

The National Contact Point at the Ministry acts as a coordinator for the twinning activities of all German ministries and authorities and works closely with the European Commission and with other Member States. Beyond this work, the Federal Ministry for Economic Affairs and Energy and its agencies have been involved in more than 180 twinning projects themselves, thus making a substantial contribution to the economic integration of the central and eastern European states, Malta and Cyprus into the EU. It is with this same level of motivation that the Ministry is now working with current candidate countries to prepare them for EU accession and with our other neighbours in eastern Europe, the Maghreb and the Mashriq.

4.2 Advising governments

For several years, German advisers to the governments of Ukraine, Belarus, Moldova and Georgia have been supporting these four partnering governments by providing them with analytical work, studies and policy recommendations designed to facilitate the process of necessary economic reform and transformation, thus fostering economic development in these countries.

The advisory teams in the partnering countries are extremely well connected and have access to key decision makers in politics and business and to the political players in the various parties. Advice is given in an independent capacity and tailored to demand. The guiding principle underpinning the advice is to establish sustainable economic and financial policies. There is a strong focus on promoting economic prowess, harnessing potential for growth and trade, and on doing so whilst assuming responsibility for society at large and protecting the environment and natural resources.

4.3 International Manager Training Programme

The Manager Training Programme was launched 20 years ago and has since become a successful instrument within the German government's trade and investment promotion toolbox. It supports small and medium-sized companies in the partnering countries, thus making an important contribution to strengthening long-lasting and sustainable economic structures. At present, the Ministry is working with 19 partnering countries from eastern Europe, Asia, North Africa, and Latin America. The programme is entitled 'fit for partnership with Germany' and prepares

managers from companies based in the partnering countries for doing business and cooperating with German companies – something that benefits both sides. During their four-week stay in Germany, managers can acquire essential skills they need in order to engage in technology transfer, manage a business, and initiate business contacts. So far, some 13,000 managers from abroad have taken part in the programme.

The Manager Training Programme is also an opportunity for German companies to access new sales and source markets, make fresh contacts, and do business with companies abroad. Tens of thousands of German companies have participated in the programme. Another reason why the programme has proven so sustainable is the strong level of activity on the part of the alumni associations (some 80 national associations with more than 4,000 members), which engage in networking and create synergies.

4.4 European Structural and Investment Funds (ESI Funds)

EU Structural and Investment Policy is guided by the principle of sustainable development, including environmental protection and improvement. Environmental protection, resource efficiency, mitigating climate change and adapting to it, biodiversity, resilience against natural disasters and risk prevention are all part of the criteria being considered when the programmes funded from the ESI Funds are designed and implemented.

The partnership agreement concluded between Germany and the European Commission on implementing the ESI Funds for the 2014-2020 period states that Germany is to promote growth that is more environmentally compatible and more sustainable. The funding from the ESI Funds is an essential contribution to the targets for emissions and immissions reduction across all sectors, for expanding the use of renewables, improving energy efficiency, and reducing energy consumption. It is also used to protect biodiversity, reduce air pollution and safeguard water supplies.

Around a third of the funding Germany receives from the European Regional Development Fund (ERDF) between 2014 and 2020 is to be spend directly on promoting environmental protection, mitigating climate change, and protecting resources.

5 Energy policy

The energy transition is one of the central projects being pursued by the Federal Government. The aim is to deliver a radical transformation of the German energy system, shifting away from nuclear power and fossil-powered electricity generation to a system that predominantly relies on renewables and a stronger energy performance. Germany's energy policy is guided by three objectives, namely to ensure a secure supply of affordable energy in an environmentally-compatible way.

Apart from being at the core of Germany's climate policy, the energy transition is also a gigantic modernisation project offering major opportunities for growth and employment in Germany, and for German companies to export their energy solutions to international markets. The Federal Ministry for Economic Affairs and Energy considers the energy transition to be a driver of modernisation, innovation and digitisation in the electricity and heating systems, but also in agriculture and transport. At the same time, the objective is also to safeguard Germany's competitiveness as an industrial centre.

The energy transition is a project that will take at least a generation to deliver. Overall and including various interim steps, it is scheduled to be completed by 2050. By that time, greenhouse gas emissions are to have diminished by 80 to 95 per cent compared to 1990, the share of renewables in gross electricity consumption is to have increased to a minimum of 80 per cent, and primary energy consumption is to have halved compared to 2008 levels.

5.1 Renewable energy

Expanding the use of renewables is one of the central pillars of Germany's energy transition. We have already made some progress on this, in particular with regard to the electricity system. As of 2017, the share of renewables in Germany's gross electricity consumption had risen to approx. 36 per cent. At the beginning of 2017, statutory funding rates for electricity from renewables were replaced by rates determined by auction, bringing down the cost of the expansion of renewables to much more efficient levels. The expansion is to continue in a focused and efficient way, in sync with the speed of grid development, and with prices approaching market level.

5.2 Upgrading the power grid

It is important for the expansion of renewables to go hand in hand with the expansion of the grids: the bulk of the electricity generated from wind power in the north and east of Germany and offshore has to be taken all the way to the centres of consumption, most of which are located in the south and west of the country. It is also becoming ever more important for Germany to expand its interconnectors with its neighbours, making it possible for the country to benefit from the European internal market in electricity. Grid expansion is the most cost-effective way of rendering the electricity system more flexible, which makes it essential to any affordable energy transition.

Promoting the expansion of the power grid is therefore one of the Ministry's priorities in the field of energy policy. The Ministry seeks to constantly improve the framework for the expansion of the transmission and distribution grids, so as to facilitate and speed up this process, get the public on board, and make the electricity grids fit for the energy transition. In summer 2018, the Ministry presented its Action Plan on Electricity Grids, which is based on a two-pronged strategy seeking to both upgrade existing grids to the optimum and accelerate the construction of new grids.

5.3 Electricity market, energy security and power plants

We want Germany to continue to be able to rely on a cost-effective and reliable supply of electricity, even as the share of wind and solar power keeps rising. The key to achieving this is a competitive approach combining flexible supply and demand sides and storage within an optimised power market 2.0. Free price formation on the wholesale electricity market will ensure that there is sufficient investment to create the capacities required.

We are incrementally reducing the share of electricity generated from coal – a development that is an important part of our work to achieve our climate targets. As we do so, we must make sure to keep our energy security at the high level we are accustomed to. And we must also bear in mind the impact this structural change is having on coal-mining regions and employees, and also on the competitiveness of German companies. This is why a new Commission on Growth, Structural Change and Employment was appointed in June 2018 and tasked with tabling specific proposals on how to resolve this (cf. p. 6).

5.4 Energy efficiency in the buildings sector

The success of the energy transition depends not only on the level of expansion of renewables but also on our ability to conserve energy and use it more efficiently. After all, energy you do not need to use does not have to be generated, stored or transported. Energy efficiency thus helps us lower the cost of the decarbonisation process and achieve our ambitious climate targets. At the same time, investments in energy-efficient technologies also drive innovations 'made in Germany'.

The Federal Government has set itself the target of halving Germany's energy consumption by 2050. The Ministry is working on an energy efficiency strategy spanning across all sectors and on upgrading the National Action Plan on

Energy Efficiency of 2014, which has since been put into practice. Buildings, which account for approx. 35% of Germany's final energy consumption (particularly for heating and hot water supply), are now a major focus within the energy transition. If we are to meet our target of rendering our building stock virtually carbon-neutral by 2050, we must increase the share of renewables in heating systems and make buildings more energy efficient. For this purpose, the Federal Government has created its Energy Efficiency Strategy for Buildings.

5.5 Energy research

Energy research is a strategic element of the Federal Government's energy policy. In addition to enabling the development of competitive, innovative and sustainable energy and efficiency technologies, research funding also generates sustainable growth and high-skilled jobs in Germany, as well as creating large export potential. At the same time, energy research allows Germany to make a major contribution to the international efforts to combat climate change. In 2017, the Federal Government spent more than a billion euros on research and the development and demonstration of modern technologies for the energy transition. Once again, this represents another increase over the funding volume of the preceding year. The 7th Energy Research Programme drawn up by the Ministry will define the government's energy research policy for the coming years.

5.6 The international tier of the energy transition

European solutions are of the essence when it comes to reconciling the objectives of energy security, competitiveness, and climate change mitigation as the energy transition is progressing. The European Climate and Energy Framework 2030 and the package of legislation implementing the Energy Union at European level are essential steps towards establishing a sustainable energy system across Europe. The Federal Ministry for Economic Affairs and Energy is closely involved in the work on this legislation.

The energy transition is a beacon that radiates beyond Europe. If we are to limit the rise in global temperatures in line with the Paris Agreement, energy systems across the world will have to be transformed. One of the key instruments of the Ministry's external energy policy is its bilateral energy partnerships with important suppliers of energy resources and with transit countries. This cooperation is about supporting our partners as they expand the use of renewables and adopt efficient energy technologies. This helps both mitigate climate change and ease the global competition for ever scarcer energy commodities. At the same time, it opens up better prospects for German companies to export energy-efficient products and innovative energy installations (cf. 7.3).

6 Industrial policy

If you factor in the construction industry, Germany's industrial sector accounts for almost a third of Germany's GDP, whilst also employing more than 10 million people. The industrial sector is an anchor of growth, prosperity and jobs in Germany and key to the country's economic and social sustainability. All this goes to show that any successful sustainability policy – even one focused on the environmental aspects of sustainability – can only be successful if it takes the industrial sector on board.

The industrial sector's contribution to sustainable development in Germany is twofold. On the one hand, the sector operates in line with environmental, climate and transparency rules as prescribed by the government. This means, for instance, that production processes are adjusted to make them compliant with sustainability requirements. On the other hand, this in turn means that industrial companies in Germany are developing innovative products and processes that are resource-efficient and help mitigate climate change. These innovations can often be used as a starting point for new business models and for better international standards.

Germany's industrial policy wants to foster these transformation and innovation processes by engaging in dialogue with industry and seeking to balance out the various interests to promote environmental, social, and economic sustainability. Our industrial policy is also designed to support the development of modern technologies that are environmentally friendly, strengthen the competitiveness of German industry and help Germany make its contribution to international environmental and climate targets.

Within the United Nations Framework Convention on Climate Change (UNFCCC), the Federal Ministry for Economic Affairs and Energy is Germany's lead ministry for the technology mechanism. The Ministry supports the Technology Executive Committee (TEC) and the Climate Technology Centre and Network (CTCN) by providing funding on a voluntary basis, thus promoting international technology transfer to help reach the climate targets set out in the Paris Agreement.

6.1 Commodities supply chains

The **Extractive Industries Transparency Initiative (EITI)** is a global standard for transparency and accountability in the commodities sector and is currently being implemented by 51 countries all across the world. The objective underpinning the initiative, which was originally designed for developing countries with a great wealth of raw materials, is to ensure that a country's revenue from its natural resources benefits all of its citizens. This requires strict transparency and accountability standards. At the G8 Summit of June 2013, Germany made the commitment to apply for EITI membership (D-EITI) along with the other G8 nations.

Implementation of the international EITI standards involves publication of the financial flows between private-sector companies operating in the field of mining and the state to be published. In the case of Germany, this applies to mining royalties, for instance². At the heart of the implementation effort is an annual report accounting for these financial flows as well as providing information on the legal and economic context relevant to the mining sector. This information is published on a website. All of the information provided via EITI must be approved by the Multi Stakeholder Group (MSG) consisting of representatives of civil society, the private sector and government.

In the case of Germany, EITI is primarily an instrument for helping the partners in our development cooperation improve transparency levels in the commodities sector and combat corruption. Germany published its first D-EITI Report in August 2017. As had been expected, the report did not find any discrepancies between the financial streams reported by industry and by government. The contextual report, however, highlights a number of important aspects relevant to sustainable mining, including information on ways to rehabilitate mining sites and offset damage caused by renewables facilities, on recycling, and on social impacts of mining. Germany is using EITI to send an important message about the importance of sustainability criteria in the commodities sector. The German MSG is currently preparing an addendum to the first D-EITI Report and the second report. Validation of the first D-EITI Report – which is part of the process Germany must complete to be recognised as a Compliant Country – is scheduled to start in November 2018.

The **European Regulation on Conflict Minerals** entered into force in June 2017. It is designed to prevent revenue from the sale of tin, tantalum, tungsten, their ores, and gold (3TG) from being used to finance armed conflict in conflict and high-risk areas, and to thereby contribute to sustainable development within the global commodities sector. As of 1 January 2021, EU importers will have to comply with binding due-diligence rules if they import more than a certain quantity of these minerals per year. A first review of the Regulation is scheduled for 1 January 2023, followed by regular reviews every three years. This is to ensure that the Regulation has the intended effect and works well, and also to measure its impact on the ground. The Federal Institute for Geosciences and Natural Resources (BGR) is Germany's designated national authority for monitoring importers' compliance with the provisions set out in the Regulation. The BGR will do so by conducting the relevant checks.

²Mining royalties are specific levies/taxes collected on earnings from raw materials, as per the Federal Mining Act.

6.2 Lightweighting/resource efficiency

Lightweighting follows a straightforward rationale: less mass means less fuel being required, meaning fewer emissions without any compromise on functionality – potentially even with better functionality. It is a way of combining economic and environmental interests, which is an important way forward if we are to reach the climate targets whilst also remaining able to compete on international markets. This is why the Federal Ministry for Economic Affairs and Energy has initiated the lightweighting initiative, which has proved highly successful. This has meant setting up a Lightweighting Office acting as the central node within the community's network, a round table for the community, an advisory council made up of materials scientists, and a steering committee bringing together individual bodies at Länder level. Furthermore, an interactive online tool has been created for the sector (www.leichtbauatlas.de). The Ministry is currently drawing up a programme for transferring lightweighting technology, which is a key-enabling technology, to industrial application at a major scale.

Lightweighting can act as an important lever when it comes to improving resource efficiency. In its national ProgRes resource efficiency programme, the Federal Government has committed to doubling Germany's resource efficiency performance by 2020, compared to 1994 levels. Working with the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety, which is the lead ministry for this, the Federal Ministry for Economic Affairs and Energy has developed ProgRes II, which is based on the principle of voluntary compliance rather than regulation and has a strong focus on innovation and best practices. At present, the Federal Ministry for Economic Affairs and Energy is commissioning a study on the role of digitisation as an enabler for resource efficiency in companies. The potential for innovation that will thus be identified is to be harnessed for long-term modernisation and for strengthening the industrial sector under the ProgRes III, which is envisaged for 2020.

6.3 Industrial Bioeconomy Platform

The bioeconomy is an important field of action for the future of high-tech made in Germany. It is about weaning us off fossils-based processes and products in favour of biological industrial production processes. The industrial bioeconomy uses alternative resources such as organic materials, organic waste and CO₂. These input materials are to be used to create primary, intermediate and end products – a notion that is fully in line with the concept of the circular economy. For this transformation to work out, new supply structures for raw materials are needed.

Federal Minister for Economic Affairs and Energy Peter Altmaier met with leading representatives of the industry, experts from the science community, and with civil society on 11 October 2018 to discuss the basic terms of a new platform for dialogue. In a next step, a steering group is due to convene to discuss the concrete organisational structures that will underpin the Industrial Bioeconomy Platform and its agenda, which is to be tied into the 'From biology to innovation' agenda being designed as part of Germany's High-tech Strategy.

6.4 Electric mobility

Electric mobility will render our transport system much more environmentally compatible. So far, more than two billion euros in R&D funding have been made available for this field of technology. The Federal Government has used its 2016 market incentive package to promote the uptake of electric vehicles by the market. Incentives have notably included a purchasing premium for buyers of electric vehicles. The Ministry supports the instalment of charging infrastructure in depots, parking lots and wherever the costs of running them are low, for instance fitted to street lamps. Among the projects receiving funding, there is a focus on those to upgrading the electricity grids to make them fit for this purpose.

Electric mobility will soon begin to have an impact on value chains. It is important for Germany and Europe to ensure that we are not missing any of the links in these new value chains. For instance, many years of funding for

battery research (approx. €450 million in total) have made it possible for this technology to be competitive. It is now essential that battery cells are also manufactured in Germany. It is important for the country to have the relevant expertise to be able to manufacture its own batteries and, in particular, battery cells.

Digitisation and automation in transport are also keys to a mobility system that is sustainable, connected and safe, and that will become climate-neutral in the long run. This is why the Ministry supports the relevant technological developments at all levels, be it sensors, methods of cooperative driving, and AI for cars. Of course it is important for all of these new technologies to be safe and secure. These are issues that need to be subject to a structured debate with market players and then to political decisions. For this reason, the Federal Government is creating a National Platform on the Future of Mobility, which is to bring together industry and union representatives, researchers and policy-makers.

6.5 Industrie 4.0

Industrie 4.0 is mainly driven by the possibilities for new technologies and processes to be used in industrial manufacturing. Industrial companies making use of digital technologies and data can create important synergies in terms of their performance on sustainability (climate change, resource-efficiency, energy transition in transport, new types of work).

For instance, resource-efficient manufacturing methods and smart energy use patterns could make it easier to achieve climate targets. Furthermore, digital change allows for goods to be produced anywhere in the world, which means that bespoke products can be created without extra cost. In a next step, there is potential for 'mass sustainability', i.e. for sustainable products to be produced at a large scale, which would help to decarbonise businesses. Physical products are now fitted with software – and increasingly also smart, self-learning systems. The trend away from simple products to smart products and services is paving the way for de-materialisation. At the same time, digital support systems are revolutionising training and vocational training, allowing for new types of work and greater flexibility in the workplace.

The Platform Industrie 4.0, which receives funding from the Federal Ministry for Economic Affairs and Energy and the Federal Ministry of Education and Research, has collected a number of positive examples showing how this can contribute to greater sustainability. The use cases developed by the platform also touch upon the issues of resource efficiency and the circular economy.

Additional information: German Aerospace Center (DLR)

For many years now, sustainability has been rooted in the DLR Guidelines. It is now also embedded in the DLR Strategy 2030. The German Aerospace Center has tasked itself with lending its expertise to researchers in aerospace, aviation, energy and transport and in the horizontal fields of security and digitisation to help them work towards the sustainable development goals, in particular SDG 7 (affordable and clean energy), SDG 9 (industry, innovation, infrastructure), SDG 11 (sustainable cities and municipalities), and SDG 13 (mitigating climate change).

Research projects attributable to SDG 7 revolve around solar thermal power plants, the development of highly-efficient, durable and low-cost fuel cells, thermal storage technologies, the transformation of coal-fired power plants to storage power plants, the development of more powerful and lightweight, quieter wind power installations, and future fuels (fuels optimised for their physical and chemical properties).

SDG 9 is to be pursued with research projects relating to railway traffic, satellite-to-ground data transmission using laser technology, self-diagnosis for the safe operations of complex structures and in lightweight production technology, robotics and mechatronics, and remote robotics.

Projects that serve SDG 11 include one using Earth observation to record the urban sprawl (global urban footprint), one using satellites to measure air quality from space, and one to identify informal settlements (slums) from space.

SDG 13 is served by the activities under SDG 7 and also projects using new types of satellite systems to gain a better understanding of complex climate systems and to develop a reliable system for monitoring the climate at country level, projects for developing new traffic control systems for automated and autonomous driving, and work on alternative and optimised propulsion systems for use in aviation.

Additional information: Federal Institute for Geosciences and Natural Resources (BGR)

The Federal Institute for Geosciences and Natural Resources (BGR) conducts large numbers of projects in the fields of energy and mineral resources, groundwater and soil, subterranean storage and business activities, and geo information.

The following is a list of examples of this work.

- In the field of mining and recovering resources, BGR is currently evaluating the potential for recycling residue from mining, processing and smelting minerals in Germany and as part of our international cooperation, for instance with Chile.
- BGR also conducts environmental impact and risk assessments in the deep sea to understand and minimise the environmental impact any potential mining activities for marine mineral resources could have and to help preserve biodiversity levels.
- The German Mineral Resources Agency (DERA) within BGR is tasked with monitoring the availability of mineral resources, including those especially needed for the expansion of renewables. In addition to economic aspects relevant to the commodities sector, DERA also considers social and environmental criteria across the entire value chain.
- BGR is engaged in research projects seeking to find ways of safely and permanently storing carbon in deep geological formations, especially in the particular conditions to be found on the sea bed of the North Sea. Furthermore, BGR will draw up criteria for carbon storage from small industrial companies and look at how this CO₂ could potentially be used for geotechnical purposes and how the storage sites could be monitored.
- Within the OECD working group on the Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas, BGR brings its experience to the table, for instance when it comes to the design of a platform providing information on supply chains and risks.

7 Foreign trade and investment policy

International cooperation and trade are important ways of strengthening sustainable growth in Germany and abroad.

The Federal Government supports the European Commission in its efforts to ensure that its trade policy is effective, transparent and underpinned by strong values (cf. 'Trade for All' strategy). This entails safeguarding the European social and ordoliberal nature of the domestic economy (no lowering of standards, protecting the right to regulate) as well as seizing the opportunities presented by comprehensive trade agreements and preference systems to promote sustainable development, human rights, fair and ethical trade, and to combat corruption. In the international arena, for instance in the OECD and the WTO, the Federal Government acts as an advocate for sustainability.

Furthermore, the Federal Government uses its foreign trade and investment policy to encourage German companies to make their supply and value chains more sustainable, and to clearly state its expectation that companies must assume responsibility for implementing sustainable standards. Foreign trade and investment acts

as a driver for sustainable innovation and jobs in Germany. By the same token, German companies doing business abroad bring efficient and modern products, vocational training and the promise of long-term commitment to their host countries, helping them change people's lives and working conditions for the better. The Federal Government advertises these sustainable aspects when pitching for contracts with its trading partners and tries to encourage them to design their tendering procedures to take into account sustainability criteria such as sustainable technology or vocational training.

Germany's foreign trade and investment institutions and instruments are designed to promote sustainability. They close gaps in the market without distorting markets in the host countries. In this way, Germany's international companies support sustainable business across the world rather than only in Germany.

7.1 Sustainability and Germany's export credit guarantees

The Federal Government's export credit guarantees protect exporters and banks engaged in foreign transactions against the risks of payment defaults due to economic or political reasons. This helps safeguard the competitiveness of German industry and jobs in Germany. Export credit guarantees make it possible for capital-intensive state-of-the-art technologies to compete in export markets and to set new benchmarks. The scheme supports itself financially i.e. is financially sustainable, as incomes and outflows are balanced out over the long term.

There are also many ways in which the scheme has an indirect impact on social and environmental sustainability, often in a positive way

(e.g. creation of skilled jobs, developing countries gaining access to modern technologies, greater uptake of renewables). The Federal Government seeks to avoid any negative impacts (e.g. environmental damage, human rights abuse in importing countries), which is why it thoroughly reviews applications for export credit guarantees in line with international standards.

7.2 National Contact Point for the OECD Guidelines for Multinational Enterprises

The National Contact Point for the OECD Guidelines for Multinational Enterprises (NCP) was created in the Federal Ministry for Economic Affairs and Energy to raise awareness of the OECD Guidelines among the business community, the unions, and within civil society. The OECD Guidelines for Multinational Enterprises are one of the most important and comprehensive international instruments for promoting responsible corporate governance. They set out generally accepted principles on a wide range of issues spanning from human rights and labour rights to environmental protection.

In Germany, the public authority having the lead responsibility for the OECD Guidelines is the NCP based at the Federal Ministry for Economic Affairs and Energy. It is tasked with engaging in PR work to raise awareness of the OECD Guidelines. The NCP is also the point of contact for anyone wishing to lodge a complaint about practical problems with the implementation of the OECD Guidelines. If the NCP accepts a complaint for review, it acts as a mediator and an arbitration platform. This means that the parties are invited to participate in discussions about what could be done to improve the way in which the OECD Guidelines are implemented in the future. One recent example had to do with the question of how social audits can be improved to make them more effective compliance and monitoring tools in global supply chains.

7.3 Sustainability and Germany's export initiatives

The Ministry's Market Development Programme for SMEs and its export initiatives support small and medium-sized companies, in particular, as they venture onto new markets, develop existing ones, and build a sustainable presence and networks. The export initiatives are also designed to transfer sustainability aspects to new markets and target regions.

The German **export initiative for environmental technology** supports manufacturers and services providers in the fields of sustainable water management, recycling, sustainable mobility, clean air, and noise control in their efforts to break into markets abroad, particularly those of emerging economies and developing countries. This also helps create jobs in Germany and abroad.

With healthcare systems across the globe becoming ever more regulated and with the legal environment becoming ever more fragmented, it is very difficult for SMEs to penetrate foreign markets. The **export initiative for the healthcare industry**, which was developed by the Federal Ministry for Economic Affairs and Energy and is implemented by Germany Trade and Invest on the Ministry's behalf, is designed to address this issue.

There is also an **export initiative for energy**, which supports German suppliers of climate-friendly energy solutions as they gain a foothold on markets abroad. When approving this initiative, the German Bundestag stated that a key objective for this initiative was to be to combat climate change by exporting climate-friendly energy technology 'made in Germany' and related services to countries across the world.

7.4 Pro! Africa Initiative

The Pro! Africa Initiative was launched by the Ministry in 2017 and wants to encourage German private-sector activities in Africa, thus promoting sustainable economic growth there on the continent. Under the initiative, Germany is beefing up its tried and tested tools of foreign trade and investment promotion and adjusting them to the needs of African countries. This is also to help improve the overall business environment in our African partner countries. Individual measures taken under the Pro! Africa Initiative are implemented in close cooperation with the Association of German Chambers of Industry and Commerce, the network of bilateral chambers of commerce, and Germany Trade and Invest.

8 Digital policy

Digitisation and sustainable development have a lot in common. Both pervade almost every aspect of our private and professional lives, which raises major challenges for policy-makers, businesses, science and civil society, but also comes with great opportunity. Moreover, digitisation can help us achieve our sustainable development targets. In fact, without digital instruments it would hardly be possible to achieve a sustainable energy sector, world of work, transport or manufacturing system, greater resource efficiency, or supply chain monitoring.

Digital processes can be used to improve traffic flow, avoid road congestion and unnecessary detours, and thus bring down emissions levels. Remote medicine can help improve public health and well-being, level out living conditions between urban and rural areas, and reduce emissions in the transport sector. However, digitisation also comes with new challenges that we need to keep track of if we want to achieve the sustainable development goals. After all, even the virtual world needs resources, servers depend on electricity, and blockchain, in particular, is a power-hungry technology.

We aspire to use our digital policy to get the framework for digital development just right and provide targeted funding. The Ministry has made it its goal to shape the digital disruption with the means of the social market economy. Also, horizontal issues like IT security and data protection, skills development and a modern legal

framework for the digital economy will have to be appropriately addressed. Our focus is on the Mittelstand, our German SMEs, for which the Ministry has designed numerous funding and advisory programmes. This support is also targeted at young, innovative companies, which will be part of the next generation of Mittelstand companies.

8.1 Blockchain Strategy

Blockchain technology is considered to be one of the new horizontal technologies underpinning digitisation. It lends itself to being used for many different purposes across sectors. It can serve as an alternative to today's digital platforms and established intermediaries, which also means that it could create a new equilibrium of economic power, i.e. have an impact on the entire economy. This is a development that needs to be followed up by economic policy.

The Federal Government is currently working on a national blockchain strategy which is to allow us pool the insights gained in various pilot projects, identify potential use cases in the public administration, build expertise and skills, and identify any potential need for adjusting the regulatory framework. As part of this process, the government will also consider whether it wants to adopt a specific stance on the energy-intensive proof-of-work process (mining of cryptocurrencies).

8.2 Artificial Intelligence Strategy

Over the past few years, artificial intelligence (AI) has matured considerably and is becoming the driver of digitalisation and autonomous systems in all areas of life. AI is now finding its way from research into an increasingly broad base of applications in business. Public and private-sector investment in this forward-looking technology is rising across the globe. There are challenges arising from the structural change taking place in business, on the job market and in citizens' lives, and from the increase in international race for talent, technology, data and investment. There is also the challenge involved in bringing new AI technologies to all the SMEs that can benefit from them. All these technological developments come with societal change, a potential need for the legal framework on the use of AI to be adjusted, and with the need for the public debate to be informed with some basic, but solid knowledge about AI.

At its Digital Summit scheduled for 3-4 December 2018, the Federal Government will publish an Artificial Intelligence Strategy for Germany, setting out specific measures that will help make Germany and Europe global leaders on AI research, development and use, and keep us there. The action detailed in the Strategy are designed to strengthen research in this field, improve the transfer of research findings into marketable products and services, encourage startups in the field of AI, prepare employees for the challenges ahead, improve the availability and usability of data, and adjust the general framework to make it better.

8.3 Digital Hub Initiative

The Digital Hub Initiative, launched by the Federal Ministry for Economic Affairs and Energy, seeks to support the establishment of digital hubs in Germany. The underlying idea of establishing hubs is that cooperation between companies and business start-ups within a small area (like in Silicon Valley) will boost innovation, especially in the digital age. For this to happen, Germany needs to create hubs of international renown where German and international start-ups, scientists, investors and established companies (including SMEs) work together and benefit from one another's expertise.

Very often, it is precisely the areas that have a lot of traditional industry that are lacking networks between established companies, innovative startups and local research institutes. Closer cooperation within the hubs

benefits both sides, with established companies learning about new ideas and young startups being able to seek advice and access the networks formed by established companies.

Each hub has a special focus that offers companies from other sector an opportunity to form a halo around it. Berlin: IoT & FinTech; Hamburg: Logistics (maritime); Dortmund: Logistics; Frankfurt/Darmstadt: FinTech & IT Security; Munich: Mobility & InsurTech; Cologne: InsurTech; Ludwigshafen/Mannheim: Digital Health & Digital Chemistry; Stuttgart: Future Industries; Karlsruhe: Artificial Intelligence; Nuremberg/Erlangen: Digital Health; Potsdam: MediaTech; Leipzig/Dresden: Smart Infrastructure & Smart Systems.

8.4 SMEs Digital

SMEs Digital provides SMEs with information about the opportunities and challenges associated with digitalisation. SMEs that turn to the centres of excellence supported by the Ministry can draw on expertise, benefit from demonstration centres and best practice examples and become part of networks that facilitate the sharing of experience.

Digitisation offers great potential for companies to render their processes, products and intra-company services more sustainable. This can be achieved by improving efficiency, automating dangerous processes, and improving transparency levels. Digitisation is key for companies wishing to take action to protect the environment and strengthen the social fabric and to design business models to this effect. Digitisation also opens up many opportunities for modernising corporate processes.

However, not every step towards greater digitisation is automatically a step towards greater sustainability, which is why the Centre of Excellence for eStandards conducts analyses into the potential implications of digitising processes along the entire value chain for the environment, society, and the long-term economic stability of a company. With demand for sustainable products and services on a constant rise and climate targets becoming stricter, sustainability is a key aspect for companies to consider as they seek to remain competitive.

9 Innovation policy

Innovation is key to competitiveness and long-term economic growth. In this way, it is also important for sustainable development. In fact, SDG 9, which is about supporting innovation, addresses this need specifically. Innovation is also indispensable for achieving some of the other SDGs: many of the challenges that need to be overcome in environmental protection or healthcare, for instance, can only be addressed by innovation, be it technical or non-technical.

The Federal Ministry for Economic Affairs and Energy aims to foster Germany's innovation capacity by creating an environment that is conducive to innovation and by developing funding programmes that are targeted to the needs of the market. As part of a four-pillar approach, the Ministry provides funding for innovative start-ups, innovative skills in companies, pre-market and close-to-market research and for the development of innovative products and processes. This means that all of the various needs and stages ranging from an initial idea to a marketable product or service are covered by tailored instruments developed by the Ministry. The programmes are not restricted to specific fields or technologies, leaving it up to the companies to decide which technology they wish to invest in.

The bulk of the funding goes to SMEs, which, due to their limited resources, are not able to invest as much capital in R&D as larger companies. In other words, SMEs need reliable public-sector funding programmes that are especially designed to level out the playing field.

9.1 Central Innovation Programme for SMEs (ZIM)

The Ministry's Central Innovation Programme for SMEs (ZIM) has an annual budget of approx. €550 million, making it one of the Germany's largest instruments for putting new ideas in practice. Every year, innovative SMEs all across Germany and their research partners use ZIM to get thousands of projects off the ground. ZIM is set up as a bottom-up programme that is technology-neutral and allows the SMEs taking part in it to decide which field of innovation they want to invest in. More than a third of the projects receiving funding are about improving environmental sustainability in some form; very often, the focus is on developing new technologies to improve the company's energy and resource efficiency. The progress made benefits not only the SMEs themselves, but also their customers and business partners.

9.2 Collective Industrial Research programme

The Ministry's Industrial Collective Research programme (IGF) gives SMEs an opportunity to become actively engaged in cooperative research and thus overcome the structural disadvantage they find themselves at due to their size. There are 100 non-profit research associations involved in the programme, representing 33 industries and catering to 50,000 SMEs. Companies submit their ideas for research projects to the research associations which take care of the paperwork. The companies are represented in the committees overseeing the projects, which foster networking with industrial partners and research institutions and facilitates the process of turning research findings into practical outcomes. The findings obtained thanks to IGF projects are accessible to all interested parties at the same conditions, without discrimination.

9.3 Further funding programmes

The '**go cluster**' Programme was designed by the Federal Ministry for Economic Affairs and Energy and brings together Germany's best-performing national innovation clusters. The objective of the programme is to help SMEs increase their technological prowess and competitiveness thanks to technology transfer and networking. There are currently (last updated: 30 August 2018) 87 cluster members with some 15,560 individual members, including 12,300 companies and some 920 university schools and higher education institutes.

The **National Contact Point for SMEs** provides information and advice to applicants (mainly SMEs) for SME-specific funding instruments and on access to venture capital provided under the EU Horizon 2020 programme. Applicants requiring help with applications and project management can turn to the National Contact Point, which wants as many German SMEs as possible to have access to European funding.

Under the '**go digital**' programme small and medium-sized commercial and skilled craft companies employing fewer than 100 staff can receive support from authorised consulting firms, to help them digitise their business processes, access digital markets, and implement IT security. Funding is available not only for the consultancy services, but also for the implementation of specific action.

The '**go Inno**' innovation vouchers programme supports small and medium-sized companies seeking to make their products and processes more innovative. Under this programme, funding is available for external advice provided by authorised consulting firms to companies with a certain amount of technological potential. The aim is to minimise technical and commercial risks, put in place the requirements for innovation, and to lower transaction costs in cases of technical cooperation.

The '**Innovation Competence**' programme is designed to promote innovation in German regions that are lagging behind in their structural development (regions receiving funding under the German Joint Federal/Länder Task "Improving the regional economic structure") and make them more competitive and able to catch up economically. The

programme is designed to encourage strict implementation of R&D projects on the market and on securing the expertise gained in external industrial research institutions prior to implementation. This is key to further improving the innovative strength of SMEs, which are the backbone of the German economy.

Additional information: German National Metrology Institute (PTB)

The National Metrology Institute (PTB) is Germany's public-sector provider of a large number of scientific and technical services.

In the field of electric mobility, for instance, PTB is exploring metering methods that make it possible to instantly and precisely gauge the charge level and battery health of electric cars, determine the residual capacity of second-use batteries, and calculate the rather complex process of recharging electricity.

PTB supports the energy transition, not least by bringing its unique metering opportunities to modern wind power installations. For instance, it has the ability to measure wind fields from the ground and to meter the exact level of tolerance for individual engine components within the nacelles, which come under a great deal of pressure.

PTB is also very active where the German electricity grids are concerned. Due to the intermittent nature of electricity generated from renewables, there is a lot of fluctuation in the electricity grids. Add international electricity trading to the equation and it becomes clear that highly precise metering is essential to avoid any overloads and to keep the grids well-balanced. So accurate must this work be that the metering results must be matched within fractions of a second after being obtained. This is where PTB can bring its expert knowledge on energy and time metering to the table. Another important development is smart metering. PTB is tasked with guaranteeing compliance with metering and calibration law and with consumer protection rules, so that electricity users can continue to rely on receiving correct invoices.

Furthermore, PTB has created an important incentive for investments in solar energy by building the world's most exact calibration system for solar cells. Approx. 50% of all PV modules installed across the world have been calibrated by PTB.

Additional information: Federal Institute for Materials Research and Testing (BAM)

The Federal Institute for Materials Research and Testing (BAM) identifies security requirements for technology and chemistry and publishes these in its guidelines. This work is also linked to sustainability and notably includes efforts

- to ensure that renewable energy technologies can be operated safely, for instance, BAM conducts research into how wind power installations can be safely built and operated;
- to contribute to a sustainable energy transition it looks at how ageing mechanisms affect containers used to transport and store radioactive materials;
- to promote a sustainable use of natural resources, BAM explores procedures allowing for metals to be retrieved from industrial waste and products;
- to develop new materials, for instance a project with African scientists on a form of organic concrete made from manioc waste.
- to improve materials efficiency, for instance through lightweighting.

BAM is also the designated point of contact under the Energy-relevant Products Act (EVPG) and the Act on Energy Consumption Labelling (EnVKG). In this capacity, BAM provides advice on energy efficiency, ecodesign and energy labelling to promote environmentally-friendly product design and sustainable products. In addition to its focus on energy efficiency, the EU is now also increasingly turning its attention to limiting emissions and improving

resource efficiency. BAM therefore also provides information and advice about the minimum standards and labelling requirements regarding products' environmental performance.

10 SME Policy

Germany's economy is driven by its SMEs, a group comprising more than 99 per cent of all firms in Germany. These companies account for more than half of our economic output and almost 60 per cent of jobs. Approx. 80 per cent of apprentices in Germany do their vocational training in an SME. The German 'Mittelstand', as these companies are collectively referred to, are key to Germany's economic competitiveness and low unemployment rate, and hence a guarantor of economic and social stability.

The Ministry wants Mittelstand companies to remain innovative and able to compete internationally and therefore makes sure that its policies support these SMEs. The Ministry's SME policy focuses on strengthening a culture of entrepreneurship and startups, securing the supply of skilled labour, fostering innovation (cf. Chapter 9) and promoting digitisation within the Mittelstand (cf. 8.4) and sustainable tourism.

10.1 Fostering a startup culture

Sustained economic success is one of the necessary criteria embedded in all our programmes for startups and young companies; compliance with statutory environmental and social standards in Germany and abroad is another one. Society benefits from the fact that the programmes are open to all sectors and to entrepreneurs taking a second chance, and funding is explicitly available for all commercial investment in accessibility.

Sustainability is embedded in our EXIST programmes, not least as the programme receives co-financing from the European Social Fund (ESF), which in turn stipulates that environmental sustainability must be a horizontal goal pursued by projects receiving funding. Both the German High-tech Start-up Fund and our INVEST programme are technology-neutral, which makes them attractive also for companies focusing on sustainability. Numerous cleantech and medical technology/healthcare services companies have received funding from these programmes.

Many of our funding programmes are also open to commercial social entrepreneurs. The Federal Ministry for Economic Affairs and Energy wants to increase transparency in this field and is therefore planning to upgrade its online portals www.existzgruender.de and www.gruenderplattform.de to ensure that they cater to social entrepreneurs as well. More specifically this means that the information, advisory and funding services on offer are to be assessed as to whether they are open to social entrepreneurs, and that this is to be better indicated on the websites.

10.2 Sustainability in vocational training

It is impossible to root sustainability in your corporate culture unless you have a competent workforce that understands about the importance of sustainability. Sustainability is part of the curriculum for the German dual vocational training. This applies to economic and environmental sustainability, but also health and safety and the need for continuing training in a world of work that is constantly in flux. The Federal Ministry for Economic Affairs and Energy is responsible for the curricula for more than 300 of the 325 occupations for which dual vocational training is available. One of the ones that have been created this year is the occupation of 'eCommerce sales clerk'.

10.3 A sustainable supply of skilled labour

Germany's labour pool is expected to diminish by some 16 million people by 2050 as a result of demographic change. This means that Germany is set to lose a third of its working population and to suffer a skills shortage, particularly in the STEM professions, in nursing and in many skilled crafts occupations.

The Federal Ministry for Economic Affairs and Energy wants to step up efforts to harness untapped potential within Germany and to also encourage skilled professionals from abroad to move to Germany. We sponsor 'Make it in Germany', an official information website providing information and advice to both international skilled professionals and German SMEs seeking to recruit skilled labour from abroad. The Ministry also provides funding for the Centre of Excellence on securing skilled labour, which is tasked with helping SMEs to be attractive and modern employers in today's world of work. There is also a network for 'Companies integrating refugees', which is coordinated by the Ministry and gives its more than 1,800 members an opportunity to support each other on how to successfully integrate refugees into the labour market.

10.4 Perfect matchmaking and Refugee Guides

The Ministry has two programmes called 'perfect matchmaking' and 'Refugee Guides' designed to support businesses seeking to find suitable apprentices and trainees. This is important if Germany is to prevent a skills gap.

The 'perfect matchmaking' programme receives its funding from both the Ministry and the European Social Fund. At present, there are 168 advisers attached to 93 business organisations. These advisers focus on filling the many open training vacancies with young people. Since the start of the programme in 2007, more than 81,000 regular apprenticeship places and more than 10,000 slots for basic introductory training have been filled.

In March 2016, the Ministry also began to provide funding for 'Refugee Guides' to be based at business organisations to help support companies in their efforts to integrate refugees in the job market and the vocational training system. There are currently 178 of these Refugee Guides visiting companies to raise awareness of the need to prevent a skills gap from forming and to offer information about the legal implications of recruiting refugees. Some 16,500 refugees have already been placed in training, work, internships, job shadowing or for basic introductory training since the programme was launched.

10.5 Sustainable tourism

The Federal Government promotes social, environmental and economic sustainability in tourism. The Federal Ministry for Economic Affairs and Energy wants to promote accessible tourism and is therefore supportive of the initiative for a uniform labelling and certification system ("Reisen für alle" [travelling for everyone]) to be applied across all of Germany. The German National Tourist Board, which receives funding from the Ministry, supports regions and destinations as they develop and implement action to promote sustainable tourism. The National Tourism Strategy is to be designed to strike a sound balance between the positive economic effects of tourism and its environmental and social implications. The Federal Government is also actively committed to the Alpine Convention, for instance by providing funding for environmental pilot projects.

11 The Ministry's own contribution to sustainability

The Federal Ministry for Economic Affairs and Energy is well aware of its responsibility to promote sustainability in its own administrative work. We have committed to implementing the 12 measures set out in the programme of action for sustainability adopted by the State Secretaries Committee for Sustainable Development and to root them firmly in the Ministry's administrative processes. One example of this is our efforts to make it easier for our staff to

balance their professional and family commitments. The Federal Ministry for Economic Affairs and Energy was the first German federal ministry to seek and receive certification by 'audit berufundfamilie' in 2002, i.e. to be certified as a family-friendly employer. Since then, the Ministry has successfully completed this auditing five times, using it as a strategic management instrument for family-friendly HR and for continuous improvement of its family-friendliness.

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