PRESOURCE

Actors and Activities in the field of Resource Efficiency in Germany

Combined presentation of the results from mapping actors and from mapping activities (at policy and economic level), relevant projects and networks in the field of resource efficiency in one country report (relates to outputs 5.1.2. and 5.1.10)

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Content

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1. Summary

The review of actors relevant for resource efficiency in small and medium-sized enterprises of the manufacturing sector and their activities in Germany, which was done by the PRESOURCE project in 2013, led to the conclusion that many relevant political, private and scientific actors put a strong focus on resource efficiency.

This is reflected by the fact that different political strategies and programmes have been accepted and are implemented by the government and that the different ministries have an understanding of their role in the processes related to the implementation of the National Strategy for Sustainable Development, the Raw Materials Strategy and the Resource Efficiency Programme. A special feature of the situation in Germany is that clear-cut goals for resource-related improvements exist, e. g. the goal to double raw materials productivity until 2020 (baseline is productivity in 1994) or the goal to double energy productivity until 2020 (baseline 1990). Germany was the first country, having developed a political programme with the clear main overarching target to increase resource efficiency, which is now being implemented by the government as a whole.

This clear-cut political focus on the national level is accompanied by a bit more diverse situation on the level of the Federal States. Some are active in the field of resource efficiency since more than ten years, others subsume resource efficiency under their general economic or environmental policies and some just began to engage in this field of action. It can be concluded, that relevant activities can be found in all of the Federal States.

The work of the public actors is supported by a wide range of agencies on different political levels fulfilling different tasks to increase the resource efficiency of the economy. On the other hand, private actors are aware of the economic benefits that can be achieved by improving resource efficiency as well. The chambers of commerce and the industry associations in which most private actors are organised, all contribute to the debate on the implementation of the German Resource Efficiency Programme and point out their active contributions to increasing resource efficiency. Private actors also engage in multi-actor networks, fostering resource efficiency. Finally, there is a broad variety of scientific actors, providing knowledge on specific aspects of resource efficiency in the economy.

It was found that the activities of the public actors range from the use of regulation, economic instruments and information instruments to participatory or voluntary instruments. Private actors' activities concentrate mainly on networking, participation at and initiation of standardisation procedures as well as the implementation of concrete technological improvements. Information and consulting were found to play a crucial role for all kinds of instruments in use.

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2. Introduction

One of the deliverables of the PRESOURCE project is an overview of actors relevant for resource efficiency in small and medium-sized enterprises of the manufacturing sector and another deliverable is to provide an overview of their activities in Germany.

The activities of different actor categories have been screened and those, who engage actively in promoting resource efficiency – especially in SME of the manufacturing sector – have been described in this country report on actors and activities.

The following actor categories have been found to initiate, support or manage relevant activities: national and regional government ministries and related agencies, other agencies and associations, chambers of commerce, norms and standards institutions, research institutes and think tanks, local networks, economic clusters and municipalities.

The activities relevant for resource efficiency in small and medium-sized enterprises of the manufacturing sector found in all mentioned actor categories are shortly described in the report, so that it provides a unique overview of actors and activities relevant for that thematic focus. The combination of the different levels from the public and private sectors gives a full picture of how different actors interact and complement in delivering progress on the way to a resource efficient economy. This research is a necessary condition to develop the ability to analyse the complex societal structure and the division of labour leading to desired political outcomes.

The second part of the report takes the perspective of activities and describes relevant forms of support structures, instruments and tools. It provides some concrete examples but does not repeat all activities of the above-mentioned actors. The relevance of the actors is determined by their activities, which are detailed in their descriptions. As for example nearly all actors are providing information services and some of them provide consultation services, the kind of information or consultation service they provide is explained in the description of the actors and their activities above. The second part mainly gives an overview of possible practical approaches, whose implementation and combination with other instruments can vary considerably.

3. Stakeholders & Activities

3.1. Additional national policies

Have additional national policies, incentives, voluntary agreements and strategies in the production sector been developed to fulfil objectives set in the Roadmap to a Resource Efficient Europe?

- The German Government has presented a German Resource Efficiency Programme (ProgRess). The programme is supposed to help to implement the goal of the National Sustainability Strategy from 2002 to double raw materials productivity in Germany from 1994 to 2020 and to implement some parts of the German Raw Materials Strategy from 2010. Finally the Programme will contribute to the implementation of the Roadmap to a Resource Efficient Europe

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- Many national policies are linked to the implementation of the strategies mentioned above. This holds true for the legislation in the fields of waste and circular economy, waste electrical and electronic Equipment (WEEE), ecodesign, energy efficiency labelling, used cars/ batteries/ packaging, energy efficiency and many more. For a nearly complete list and assessment see the following publication: Sanden, Joachim/ Schomerus, Thomas/ Hermann, Andreas/ Schulze, Falk / Wegener, Henrike (2011): Entwicklung eines Regelungskonzepts für ein Ressourcenschutzrecht des Bundes, Leuphana Universität Lüneburg und Öko-Institut i. A. v. Umweltbundesamt

http://www.esv.info/978-3-503-14162-3
http://www.umweltbundesamt.de/uba-info-medien/3336.html

3.2. National/regional government ministries and agencies

Who is responsible for the topic of Resource Efficiency in the production sector on the governmental level? (e.g. Ministry of Commerce, Ministry of Environment) Which department is taking the lead? Which activities and actions to enforce RE are taken? In case of federal states, please include information on national and sub-national level.

3.2.1. The Federal Government (BK)

http://www.bundesregierung.de/Webs/Breg/EN/Issues/Sustainability/_node.html

- BK is coordinating the work of the ministries, especially in the field of sustainability politics. It regularly publishes progress reports to the national sustainability strategy, containing amongst others data on energy and raw materials productivity
- The board of state secretaries meets on a regular basis to discuss relevant issues. In October 2012 it agreed on a resolution to some aspects of RE-policy. The German Council for Sustainable Development is directly involved in these discussions and consults the Government directly

3.2.2. Federal Statistical Office (Destatis); formally subordinated to the Federal Ministry of the Interior (BMI)

https://www.destatis.de/EN/Homepage.html;jsessionid=1739F9BAEBD93E811B856DC8B636C638.cae3

- Destatis is calculating and developing indicators for the economy and the environment
- The raw material productivity indicator of the government is one of the indicators which Destatis calculates for the progress reports to the national sustainability strategy. Other indicators encompass energy efficiency, greenhouse-gas-emissions and land consumption
- The development is published on a two years basis (indicator and progress reports)

3.2.3. Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU)

http://www.bmu.de/en

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- Main contributing institution to the German Resource Efficiency Programme (ProgRess). BMU is leading many and participating at most of the concrete steps planned in ProgRess. This is particularly relevant in the field of laws and regulations concerning waste and the circular flow economy
- BMU is financing the German Centre for Resource Efficiency (VDI Zentrum Ressourceneffizienz) and coordinates its work. The main aim is to assist small and medium-sized enterprises with the implementation of resource efficient processes by providing expertise and information
- BMU is financing many research and efficiency implementation projects. A good example is the "Umweltinnovationsprogramm" (Environmental Innovation Programme). Other examples are the projects "LiBri" and "LithoRec", which deal with the recycling of modern batteries. Many projects are furthermore dedicated to the question, how regulative and economic policy instruments could further incentivize improvements in resource efficiency. One example is the project "PolRess" (Ressourcenpolitik), in which many German policy research institutes participate
- BMU contributes to the development of indicators to measure different aspects of resource efficiency
- BMU controls the implementation of the environmental management system EMAS in Germany and charged the German EMAS Advisory Board/ „Umweltgutachterausschuss" (UGA) with operative tasks. BMU supports the development and the proliferation of EMAS
- Resource aspects were integrated in the Environmental Label "Blauer Engel" (blue angel)
- BMU finances a project in cooperation with BMWi and the Chambers of Commerce and Industry, which is amongst others dealing with energy efficiency: "Klimaschutzunternehmen"
- BMU regularly publishes the "GreenTechAtlas Germany", in which relevant market developments in the field of green technologies are explained and underpinned with numbers
- BMU supports European activities in resource efficiency policy. The Minister is a member of the European Resource Efficiency Platform EREP
- International Activities, e. g. support of the export initiative for recycling techniques RETech, bi- and multilateral dialogues with other countries in relevant policy fields, active contributions to the work if UNEPs International Resource Panel

3.2.3.1. Federal Environment Agency (UBA); subordinate agency of BMU

http://www.umweltbundesamt.de/index-e.htm

- UBA is supporting BMU in most of its activities in the field of RE. Its expertise is used to coordinate and support the implementation of many research and efficiency implementation projects. An example is the "Umweltinnovationsprogramm" (Environmental Innovation Programme). Another is a great deal of management in the field of the promotion of associations (Verbändeförderung)
- UBA is continually developing its own expertise in the field of RE in different sectors. It publishes calls for studies, accompanies their execution and publishes their results. UBA is doing some research by itself

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- UBA is providing relevant information to increase RE in the manufacturing sector
- UBA operates the data bank "clean production Germany"

3.2.4. Federal Ministry of Economics and Technology (BMWi)

http://www.bmwi.de/EN/root.html

- Main contributing institution to the German Raw Materials Strategy from 2010. Many aspects in this strategy relate to RE, as for example the "Raw Material Partnerships"
- BMWi has contributed to the formulation of ProgRess and will support its implementation
- Operation of a German Raw Materials Agency (Deutsche Rohstoffagentur)
- BMWi finances a German Material Efficiency Agency (Deutsche Materialeffizienzagentur). This agency is promoting materials efficiency in small and medium-sized enterprises. It operates a pool of consultants and a programme with which consulting is supported: "Innovation Vouchers" (Innovationsgutscheine) of the programme "go inno", "module go efficient"
- BMWi provides public funding for consultation services in the field of materials efficiency in enterprises of the manufacturing sector. E. g. BMWi supports the work of the "Rationalisation and Innovation Centre of the German Economy" (RKW Rationalisierungs- und Innovationszentrum der Deutschen Wirtschaft e.V.) financially and by other means. RKW is co-founded by funds from the "German Länder" and from European sources
- BMWi is financing many research and efficiency implementation projects in the German economy. One example is the "Zentrales Innovationsprogramm Mittelstand (ZIM)", another one the ERP-Innovation-Programme
- BMWi awards a yearly German Raw Materials Efficiency Prize to enterprises, who developed or applied resource efficient, innovative solutions

3.2.4.1. Federal Institute for Geosciences and Natural Resources/ Bundesanstalt für Geowissenschaften und Rohstoffe (BGR)

http://www.bgr.bund.de/EN/Home/homepage_node_en.html;jsessionid=10E31F80308316CADCCEE1D0B4417365.1_cid334

- The Federal Institute for Geosciences and Natural Resources provides lots of information concerning raw materials
- BGR founded the German Raw Materials Agency (DERA – Deutsche Rohstoffagentur), which provides raw material related information to actors of the public and the private sector

3.2.4.2. Federal Institute for Materials Research and Testing (BAM)

http://www.bam.de/en/index.htm

- BAM fulfils different tasks in the field of materials research. This relates to material substitution, recycling and to material savings in numerous applications

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3.2.5. Federal Ministry of Transport, Building and Urban Development (BMVBS)

http://www.bmvbs.de/EN/Home/home_node.html

- BMVBS has contributed to the formulation of ProgRess and will support its implementation
- Operation of a Federal Institute for Research on Building, Urban Affairs and Spatial Development within the Federal Office on Building and Regional Planning. The institute supports resource efficiency in urban planning, housing, public buildings and transport infrastructure in different ways: projects, guidelines, research, regulations and loan programmes
- Development of a certifying scheme for buildings: Bewertungssystem Nachhaltiges Bauen für Bundesgebäude (BNB). BNB allows to certify public buildings according to generally accepted and ambitioned sustainability criteria, including criteria of RE

3.2.5.1. Federal Institute for Research on Building, Urban Affairs and Spatial Development within the Federal Office on Building and Regional Planning

http://www.bbsr.bund.de/cln_032/nn_340546/BBSR/EN/Home/homepage__node.html?__nnn=true

- The Federal Institute for Research on Building, Urban Affairs and Spatial Development within the Federal Office on Building and Regional Planning is supporting BMVBS concerning the tasks mentioned above

3.2.6. Federal Ministry of Education and Research (BMBF)

http://www.bmbf.de/en/index.php

- BMBF has contributed to the formulation of ProgRess and will support its implementation
- BMBF supports the development of new resource efficient technologies at all stages of the value chain in nearly all branches of the manufacturing sector. For this purpose, BMBF grants a wide variety of financial support programmes. Resource efficiency plays a vital role in many of these programmes. One area of interest is the „BMBF-Rahmenprogramm Forschung für Nachhaltige Entwicklungen (FONA)“, which encompasses many aspects of sustainability and resource efficiency. Another interesting area is the so called HighTech-Strategy”. Focal points of support are e. g. „r³- Innovative Technologien für Ressourceneffizienz - Strategische Metalle und Mineralien“, „Materialien für eine ressourceneffiziente Industrie und Gesellschaft - MatRessource“ or „KMU-Innovativ“
- BMBF is coordinating the national research strategy for a bioeconomy/ “Nationale Forschungsstrategie BioÖkonomie 2030”. One focus is the targeted substitution of abiotic materials by biotic materials
- BMBF published the call „Material research for the Transformation oft he Energy System“/ “Materialforschung für die Energiewende” in 2013. Many of the eligible funding areas are directly related to resource efficiency in the production sector
- BMBF finances the Helmholtz Institute Freiberg for Resource Technology (HIF)

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3.2.7. Federal Ministry of Food, Agriculture and Consumer Protection (BMELV)

http://www.bmelv.de/EN/Homepage/homepage_node.html

- BMELV has contributed to the formulation of ProgRess and will support its implementation.
- BMELV supports resource efficient methods of production, manufacturing and use of biotic raw materials with a wide range of different measures. These include financial support programmes, the financing of a central coordinating institution for research, development and demonstration projects in the field of renewable resources (Fachagentur Nachwachsende Rohstoffe e.V.), the financial support of consulting services and further forms of support
- BMELV is fostering the targeted use of biotic materials to substitute abiotic material in different appliances
- BMELV contributes to the national research strategy for a bioeconomy/ "Nationale Forschungsstrategie BioÖkonomie 2030" of BMBF and supports the implementation of results

3.2.8. Federal Ministry for Economic Cooperation and Development (BMZ)

http://www.bmz.de/en/index.html

- BMZ has contributed to the formulation of ProgRess and will support its implementation
- BMZ supports the installation and application of resource efficient technologies and infrastructures in different sectors in developing countries. This includes organisational, financial and consultative modes of support as well as technology transfer. Often the concrete tasks are filled out by the GIZ (Deutsche Gesellsschaft für Internationale Zusammenarbeit GmbH)
- BMZ is engaged in the certification of products and the introduction of environmental and social standards in developing countries

3.2.9. Land Baden-Württemberg (BW)

http://www.baden-wuerttemberg.de/en/home

- BW supports resource efficiency with a wide variety of measures. One of the main measures was to set up a state agency for environmental technologies: "Umwelttechnik BW - Technologie- und Innovationszentrum Umwelttechnik und Ressourceneffizienz Baden-Württemberg GmbH."
- Different web-based information platforms (Kompetenzatlas Umwelttechnik/ Informationsangebot Ressourceneffizienz)
- Support programme: EFRE-Guideline environmental technologies
- Environmental Technique Prize BW
- Programme Klimaschutz Plus
- Consulting Programmes ECO+ and ECOfit; "Konvoiprogramm EMAS"
- Plattform Betrieblicher Umweltschutz

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- European Clusters and Regions of Eco-Innovation Network Plus ECREIN+
- Flächenmanagement Plattform BW

3.2.10. Free State of Bavaria (BV)

http://www.bayern.de/English-.594/index.htm

- Inclusion of resource efficiency in the sustainability strategy of BV
- Inclusion of resource efficiency in the "Umweltpakt Bayern", which runs from 2010 to 2015. This is a voluntary agreement between BV and its main economic actors
- Information Centre: Informationszentrum Umweltwirtschaft
- Support of a network (KUMAS – "Bavarian Centre of Competence in Environmental Technologies and Affairs") containing important public and scientific actors in the field of resource efficiency (Landesamt für Umwelt, Informationszentrum Umweltwirtschaft, imu Augsburg, bifa Umweltinstitut, University Augsburg, Umweltcluster Bayern)
- Support of further actors, information platforms and conferences
- Support of resource efficiency consultations in small and medium-sized enterprises
- Operation of a Stakeholder Working Group "Raw Materials Strategy"

3.2.11. Land Berlin (BE)

http://www.berlin.de/en

- Different measures to enhance high grade recovery or reutilisation of valuable materials
- Enhanced use of existing certification schemes for raw materials
- Climate preserving and high grade recovery or reutilisation of biotic materials
- Enhanced use of the instrument of resource efficient public procurement. BE was one of the first Länder having introduced an administrative directive for green public procurement
- Optimisation of collection and recycling of resource relevant mass waste streams
- Second Environment Relief Programme
- Political focus on energy and climate protection; climate protection agreements

3.2.12. Land Brandenburg (BB)

http://www.brandenburg.de/cms/detail.php/lbm1.c.392425.de

- Support of enterprises who are installing environmental management systems like EMAS or ISO 14001
- Support of projects of the consumer centre (Verbraucherzentrale) BB
- Operation of an environmental partnership of BB with economic actors
- Inclusion of resource efficiency in the sustainability strategy of BB

3.2.13. Free Hanseatic City of Bremen (BR)

http://www.bremen.de

- BR organises and operates campaigns, conferences, information platforms, networks and a prize in the field of resource efficiency
- Different financial and non-financial support schemes for research and implementation of environmental technologies were set in place
- Research and education in the field of resource efficiency is implemented at the University of BR

3.2.14. Free and Hanseatic City of Hamburg (HH)

http://english.hamburg.de

- Operation of an environmental partnership of HB with economic actors. The partnership offers a variety of services to enterprises, dedicated to promote the protection of climate and resources: cost free consultation, investment incentives for RE-measures, networking opportunities
- The environment agency of HH is very active in the field of resource efficiency as well and supports consultation to and implementation of RE-measures in enterprises, organises expert workshops, contributes to the construction of a competence platform and started a contest for environmentally friendly products
- HH started a recycling initiative in 2012

3.2.15. Land Hesse (HS)

http://verwaltung.hessen.de/irj/hessen_en_Internet

- HS initiated a consulting programme for small and medium-sized enterprises. It is based on the concept of "production integrated environment protection" – PIUS (Produktionsintegrierter Umweltschutz). Its aim is to improve production processes in terms of a more efficient use of energy, water, air and materials and to save costs at the same time. The project is operationally implemented by the RKW Hessen GmbH
- HS operates the "Aktionslinie Hessen-Umwelttech" (actionline Hesse-Environmenttech). It supports the implementation of PIUS and provides information, networking opportunities, consulting and technology transfer services. It is part of the PIUS-Germany platform. The central actor implementing those tasks is the "HA Hessen Agentur GmbH"

3.2.16. Land Mecklenburg-Western Pomerania (MP)

http://www.regierung-mv.de/cms2/Regierungsportal_prod/Regierungsportal/de/start/index.jsp

- The action plan for climate protection from 2010 mainly focuses on CO2-reduction but encompasses possibilities to improve RE as well

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- Operation of an environmental alliance of MP with economic actors. On this basis enterprises can be supported, if they wish to improve their RE

3.2.17. Land Lower Saxony (LS)

http://www.lower-saxony.de/portal/live.php?navigation_id=28532&_psmand=1016

- Since the 1980s LS has established different Governmental Commissions to discuss strategic questions concerning waste management, product responsibility and the circular economy. Stakeholders from different sectors are included. The 6th governmental commission focused on energy and RE. Its final report was published in 2011. The 7th governmental commission was constituted in 2012 and continues to elaborate RE. One of the major outcomes was enterprises' networks, e.g. the "Initiative Zukunft Harz". Its first project is called "Recycling Cluster"
- LS cooperates with the RKW (see above at BMWi), founded a RKW Lower Saxony, whose work is co-founded by the European Social Fund (RKW Niedersachsen GmbH). It is offering consulting services to small and medium-sized enterprises to improve their material efficiency. Moreover it offers qualification courses for RE-consultants

3.2.18. Land North Rhine-Westphalia (NR)

http://www.nrw.de/en

- NR operates the "Efficiency Agency NRW – efa" (Effizienz-Agentur NRW - efa). The agency is offering consulting services to small and medium-sized enterprises to improve their resource efficiency. Moreover it offers qualification courses for RE-consultants
- Cooperation with and contribution to the PIUS-Network (Produktionsintegrierter Umweltschutz)
- Introduction of a private sector efficiency prize, awarded by efa
- NR financially supports the implementation and the development of RE-measures in enterprises by the Programme "Ressourceneffizienzprogramm NRW"
- NR operates a regional cluster for environmental technologies: Landescluster Umwelttechnologien NRW
- NR supports the introduction of environmental management systems, e. g. ÖKOPROFIT
- NR is developing an environmental economic strategy (Umweltwirtschaftsstrategie NRW), in which RE in the manufacturing sector is to play a vital role
- NR clearly commits to the implementation of RE in the economy and the EU-Roadmap to a Resource Efficient Europe

3.2.19. Land Rhineland-Palatinate (RP)

http://www.romantic-germany.info

- RP is cooperating with HS and NR in operating an online PIUS-Platform (see above at HS/ NR; Produktionsintegrierter Umweltschutz - PIUS)

- RP is operating the efficiency network RP, as central information facility and communication node for all stakeholders, interested in the field of RE (Effizienznetz Rheinland-Pfalz - EffNet). Current projects of EffNet are: EffCheck-PIUS-Analyses in RP; combined heat and power initiative; support of the special fund "Energieeffizienz in KMU" of the German Credit Institution for Reconstruction (KfW) and different series of conferences
- RP is commissioning research on resource efficiency in different branches of the economy
- RP supports the IfaS Institute for Applied Material Flow Management, which is involved in diverse research projects measuring RE in the economy
- RP is supporting an Information Forum on waste management and material flow management in the health sector
- Moreover RP engages with a broad range of single activities for the improvement of RE

3.2.20. Saarland (SL)

http://www.saarland.de

- Operation of an environmental partnership of HB with economic actors. The partnership offers a variety of services to enterprises, who want to increase their resource efficiency
- SL is operating an energy efficiency network SL for enterprises: "EEnet Saar"
- On the basis of the SL-Masterplan for a sustainable energy supply, the cascading use of wood is focused

3.2.21. Free State of Saxony (SX)

http://www.sachsen.de/en

- The strategy for the adaption of the agricultural sector to climate change and the action plan for climate and energy affect RE
- Sustainability has been implemented in all processes including the production of biotic raw materials
- Reduction of the use of fossil and biotic resources for energy production in favour of the production of renewable energy (wind, sun, geothermal)
- Efficient land use aim

3.2.22. Land Saxony-Anhalt (SN)

http://www.sachsen-anhalt.de/index.php?id=l_en

- Financing of up to 75% of consultation services for small and medium enterprises in the field of RE. Operation of the consultation programme by SN
- Promotion of innovative resource efficient modes of waste management and recovery
- Promotion of integrated product policy concepts

- Operation of an environmental partnership of SN with economic actors. The partnership offers a variety of services and incentives to enterprises, who want to increase their resource efficiency

3.2.23. Land Schleswig-Holstein (SH)

http://www.schleswig-holstein.de/Portal/EN/Portal_node.html

- Consultation services, support of networking activities, financial and other forms of support are the main categories of activities SH is undertaking to increase RE. An example for a network is the "Netzwerk Materialeffizienz Schleswig-Holstein (NeMat)", which offers to enterprise a broad range of services (exchange of expertise, qualification courses, workshops, expert consultations, information transfer). The network is operated by the "WTSH Business Development and Technology Transfer Corporation" of SH
- Financial support for small and medium-sized enterprises who want to introduce resource efficient production technologies, especially by the programme "Umweltinnovationen". Financial support for the introduction of the quality and environmental management system "Qualitätsverbund umweltbewußter Betriebe". Financial support for small and medium-sized enterprises to get access to highly qualified human resources by the programme "Innovationsassistent"

3.2.24. Free State of Thuringia (TH)

http://www.thueringen.de/en/

- TH operates and finances an Energy and Green-Tech-Agency (ThEGA). It provides information and consultation services for green technologies
- Agreement of TH with the main economic actors on a sustainable development of the economy
- Bio energy consulting services
- The bank "Thüringer Aufbaubank" is supporting different RE-measures in enterprises
- Participation at the networking initiative "30 Pilot-Netzwerke für Klimaschutz und Energieeffizienz" and establishment of the TH-network „EnergieEffizienz-Netzwerk Thüringen (ENT)"
- Roadmap-process RE for policy development and implementation

3.3. Additional comments

Any additional comments on the responsibilities of Resource Efficiency? (e.g. unclarity about distribution of responsibilities, main political driver)

- The Federal Chancellery is coordinating the activities of the ministries. The above-mentioned ministries fulfil relevant tasks in the raw materials and resource efficiency policy. Each one has its own main fields of action, and contributes to others. E. g. BMWi mainly

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focuses on the raw materials strategy. BMU mainly focuses on ProgRess; BMBF treats most questions related to education and research, BMVBS those related to housing, infrastructure and transport. Destatis has the lead in what concerns indicators and their development. The Federal Government respectively the Federal Chancellery has the function of a political umbrella, especially in the sustainability policy. It coordinates the activities

- The German "Länder" take a wide range of different approaches to the policy field of resource efficiency. Different ministries take the lead and often different ministries share responsibilities in this realm. In most cases, the ministries for the environment and for the economy are involved. Very often the central governments of the Länder committed explicitly to improve RE. The structures and activities built up in the Länder differ, but common elements are visible: networks, information platforms cooperation agreements between public and private actors, public funding for improvements, especially in small and medium-sized enterprises
- BMU is organising biannual informal meetings of representatives of the Länder-Governments responsible for RE

3.4. Agencies, chambers, associations and networks

Which are relevant actors contributing to the implementation of Resource Efficiency actions concerning the production sector?

3.4.1. Public agencies (state owned)

German Credit Institution for Reconstruction (KfW: Kreditanstalt für Wiederaufbau), formally subordinated to the Federal Ministry of Finance (BMF)

https://www.kfw.de/kfw.de-2.html

- The KfW is providing loans for different investment purposes. A focal point is investment in the energy-efficiency-oriented modernisation of buildings. Another area of support are measures that contribute to increased resource efficiency in production processes (KfW Umweltprogramm)

German Advisory Council on the Environment/ Sachverständigenrat für Umweltfragen (SRU)

http://www.umweltrat.de/EN/TheGermanAdvisoryCouncilOnTheEnvironment/thegermanadvisorycouncilontheenvironment_node.html

- SRU consults the Government in all questions regarding the environment. This includes most aspects of resource efficiency policy. The production sector is affected by the policy recommendations of SRU if they are implemented

German Council for Sustainable Development/ Rat der Bundesregierung für Nachhaltige Entwicklung (RNE)

http://www.nachhaltigkeitsrat.de/en/home

- RNE consults the Government in all questions concerning sustainability. This involves policy recommendations, as e.g. for public procurement or recycling policy. Moreover it points out chances, that enterprises have when they develop business strategies according to the principles of sustainability
- RNE set up and operates the German Sustainability Code, which has been signed by 47 companies. The code includes environmental standards

German EMAS Advisory Board/ „Umweltgutachterausschuss“ (UGA)

http://www.uga.de/hilfszeile/english-summary

- UGA manages the implementation of EMAS in Germany and issues guidelines for enterprises

3.4.2. Private sector agencies

demea (Deutsche Materialeffizienzagentur) c/o VDI/VDE Innovation + Technik GmbH

http://www.demea.de

- The demea is supported by BMWi and fulfils different tasks to increase resource efficiency in small and medium-sized enterprises. It operates an information platform, promotes the programme “go-efficient” (support by consulting), motivates small and medium-sized enterprises to increase their RE and administers a pool of RE-consultants

Efficiency Agency NRW – efa/ "Effizienz-Agentur NRW - efa"; holding company is the prisma consult GmbH

http://www.efanrw.de/index.php?L=1

- The agency is offering consulting services to small and medium-sized enterprises to improve their material efficiency. It operates an information platform
- Qualification courses for RE-consultants
- Cooperation with and contribution to PIUS-Network (Produktionsintegrierter Umweltschutz)

Germany Trade and Invest (GTAI) - Gesellschaft für Außenwirtschaft und Standortmarketing mbH

http://www.gtai.de/GTAI/Navigation/EN/trade.html

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- Germany Trade & Invest is the economic development agency of the Federal Republic of Germany. The organization promotes Germany as a business and technology location and supports companies based in Germany with global market information
- GTAI among others provides information relevant to RE

HA Hessen Agentur GmbH

http://www.hessen-agentur.de

- The Hesse Agency is a service provider in the Land Hesse, providing consulting, participating in the implementation of projects and campaigns and other forms of support for public actors and enterprises

Project Management Jülich/ Projektträger Jülich Forschungszentrum Jülich GmbH (PtJ)

http://www.ptj.de/index.php?index=514

- PtJ is the project-executing organisation for many projects of BMBF, BMWi, BMU, BMVBS, BW, NW, MV, BV and the EU. A significant part of these projects – at least among others – concerns RE

RKW Niedersachsen GmbH

http://www.rkw-niedersachsen.de/index.asp?tree_id=127

- RKW Niedersachsen is offering consulting services to small and medium-sized enterprises to improve their material efficiency. Moreover it offers qualification courses for RE-consultants

VDI Zentrum Ressourceneffizienz GmbH (VDI ZRE)

http://www.vdi-zre.de/home

- VDI ZRE, the German Centre for Resource Efficiency, is financed by BMU and operated by the German Association of Engineers (VDI – Verein Deutscher Ingenieure)
- Its tasks comprise the comprehensive and generally intelligible representation and support of the integrated application of environment, resource and climate protection technologies. For this purpose, information, knowledge and expertise with regard to the efficient use of resources are being pooled, processed and made available on a broad basis: Databases, Innovation Radar, Resource Checks, Systematization with Process Chains, Best Practice Examples, Efficiency Map / Funding Map, WebVideomagazine, diverse support activities in the qualification of consultants and employees
- The main target group are small and medium-sized enterprises

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3.4.3. Chambers (e.g. Chamber of Commerce, Chamber of Industry)

Chambers of Commerce and Industry/ Deutscher Industrie- und Handelskammertag (DIHK)

http://www.dihk.de/en

- The DIHK is the Association of the German Chambers of Commerce and Industry. It is the central organisation for about 80 Chambers of Commerce and Industry, CCI (Industrie- und Handelskammern, IHKs) in Germany. All German companies registered in Germany, with the exception of handicraft businesses, the free professions and farms, are required by law to join a chamber. The CCI are active in the field of RE in varying degrees. They have an important function in providing information for enterprises
- DIHK cooperates with BMU, BMWi and the German Confederation of Skilled Crafts (Zentralverband des Deutschen Handwerks e.V.) in an initiative for the German Transformation of the Energy System: "Mittelstandsinitiative Energiewende". Moreover DIHK implements a project in cooperation with BMU and BMWi, called "Klimaschutzunternehmen". Amongst others it is focused on energy efficiency

Chambers of Crafts

- The Chambers of Crafts (Handwerkskammern) are regionally organised and provide different services to their members to foster resource efficiency. For details see below "ZDH"

3.4.4. Associations (e.g. Association of Engineers)

Association of German Engineers/ Verein Deutscher Ingenieure (VDI)

http://www.vdi.eu

- With nearly 150,000 personal members VDI is one of the largest technical-scientific associations in Europe. VDI has successfully expanded its activities nationally and internationally committing itself to foster and impart knowledge about technology related issues. The VDI covers a wide range of technical topics and communicates this knowledge through studies, technical discussions and congresses or the VDI guidelines that create generally accepted technical rules. Many of those rules have a positive impact on resource efficiency. Moreover some rules are actually created, dealing explicitly with different aspects of RE
- The VDI cooperates with different ministries at the implementation of different projects. One example is the cooperation with BMU concerning the operation of the German Centre for Resource Efficiency. Another example are many projects of BMBF for which VDI is the project executing organisation

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BV Glas, the Federal Association of the German Glass Industry (Bundesverband Glasindustrie e.V.)

http://www.bvglas.de/en/the-association

- BV Glas contributes actively to the high recycling quotas in the glass sector (over 85% end of life recycling). This means to ensure high quality of used glass entering recycling processes. The initiative "not-everything-is-suitable-for-old-glass"/ "Nicht alles paßt ins Altglas" has been founded.

Central Association of Surface Treatment Professionals/ Zentralverband Oberflächentechnik e.V. (ZVO)

http://www.zvo.org

- Together with other project partners (Europe Innova – project REMake), ZVO contributes to the support of small and medium-sized enterprises to use resources efficiently. A consulters pool has been set up for the project
- The products of the sector can contribute to resource efficiency in other sectors of the economy. Especially the buyers are important partners for dialogue, if surface qualities have to be adapted to different functional needs

Confederation of German Trade Unions/ Deutscher Gewerkschaftsbund (DGB)

http://en.dgb.de

- Employees play a significant role for increases of RE in enterprises. Work councils are important intermediaries for such issues (RE and Sustainability). DGB cooperates with BMU in efforts to set up qualification and certification schemes for work councils (Betriebsräte) and staff councils (Personalräte)

econsense - Forum for Sustainable Development of German Business e.V.

http://www.econsense.de/en

- econsense is an association of leading, globally active companies and organisations of German business specializing in the area of sustainable development and corporate social responsibility (CSR)
- Founded in 2000 on the initiative of the Federation of German Industries (BDI), the goal of econsense is to provide a dialogue platform and think tank, with the dual objectives of advancing sustainable development in business and assuming social responsibility

Federal Association for Information Technology, Telecommunications and New Media/ Bundesverband

Informationswirtschaft, Telekommunikation und neue Medien e.V. (BITKOM)

http://www.bitkom.org/en/Default.aspx

- BITKOM contributes to increasing RE in the sector of information and communication technology since many years. Examples are the on-going initiative "Green IT", the establishment of take-back structures for used electronic devices, the establishment of a platform for green procurement, project consultancy for green IT, implementation of campaigns directed to users of electronic devices and publication series dedicated to environmental issues

Federal Association of the German Waste Management Industry/ BDE -Bundesverband der Deutschen Entsorgungs-, Wasser- und Rohstoffwirtschaft e.V.

http://www.bde-berlin.org

- BDE is lobbying for the expansion of the circular economy on all political levels
- Organisation of a standardisation process with operators of "Dual Systems" in Germany. The target was to establish high environmental standards and economic security for distributors of packaging products and the operators of Dual Systems
- Clear statement for the expansion of product responsibility. The aim is to integrate decisions which are of crucial importance for recycling already in the product design phase
- BDE is actively supporting the development of criteria for end of waste in the EU

Federation of German Industries/ Bundesverband der Deutschen Industrie (BDI)

http://www.bdi.eu/BDI_english/index.htm

- BDI operates the initiative "Energy Efficient Buildings"/ "Energieeffiziente Gebäude", in which associations and businesses work together to promote the energy-efficiency focused building refurbishment
- BDI cooperates with different ministries in different forms to support activities aiming at improving RE. An example is the common memorandum of BDI and BMU for a Green Economy from 2012
- Different initiatives, like "econsense" (see above) or the issue of a fact book for RE: "Faktencheck Ressourceneffizienz"

Federation of German Wholesale, Foreign Trade and Services/ Bundesverband Großhandel, Außenhandel, Dienstleistungen e.V. (BGA)

http://www.bga.de/index.php?id=81

- BDA is supporting the marketing and sale of efficient products with different initiatives

- BDA supports returnable packaging schemes in different sectors, e.g. in the trade of chemical products or beverage products. In some cases these initiatives are supported by consumer campaigns
- Environmental management of the disposal of parts of waste cars
- Initiatives to prolong the life time of machines

Federation of the German Metal Industry/ Wirtschafts-Vereinigung Metalle (WVM)

http://www.wvmetalle.de

- WVM is the association of German enterprises producing non-iron metals
- The association is operating a platform of enterprises which publishes information about resource efficient production technologies in the sector of non-iron-metal-production: "Metalle pro Klima". It focuses on technologies that can reduce CO2-emissions. One core aspect is metal recycling

German Association of Machinery Manufacturers/ Verband Deutscher Maschinen- und Anlagenbau (VDMA)

http://www.vdma.org/en_GB

- VDMA is cooperating with BMBF at the implementation of over 30 research projects, in which over 200 partners from the private sector and scientific partners are involved. The aim of these projects is to increase resource efficiency of production processes. These projects are complemented with the common BMBF-VDMA-project "Effizienzfabrik". Its aim is the application of the results of the research into a significant part of the economy
- VDMA is operating the initiative "blue competence". It is a platform, that reunites the whole know how of the sector in the field of RE and sustainability. The aim of the initiative is to promote the sustainable products of the sector on the world market and to help the sector to stay in a good competitive position on the markets of the future. This is achieved by exchanging know how and information on best practices and actual developments

German Building Materials Association/ Bundesverband Baustoffe - Steine und Erden e.V. (BBS)

http://www.baustoffindustrie.de/cms/website.php

- The enterprises organised in BBS use as environmentally harmless production techniques as possible. Moreover they comply to rules, by implementing renaturation projects after quarrying projects
- Contribution to the initiative "Circular Economy in the Construction Sector"/ "Kreislaufwirtschaft Bau", which voluntarily publishes relevant information on material flows in the construction sector on a regular basis

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German Confederation of Skilled Crafts / Zentralverband des Deutschen Handwerks e.V. (ZDH)

http://www.zdh.de/index.php?id=1878

- The regional structure of the German Chambers of Crafts is very convenient for the purpose of implementing RE in enterprises. ZHD and its Chambers support enterprises by consulting, intermediation services between public and private actors, organisation of networks, awarding of environmental prizes, support for the introduction of environmental management systems, project management and broad information campaigns concerning environmental issues. Examples are the "Umweltpreis der Handwerkskammer Chemnitz" or the "Umweltberatungsprogramm für das Handwerk Baden-Württemberg".

German Construction Industry Federation/ Hauptverband der Deutschen Bauindustrie e.V. (HDB)

http://www.bauindustrie.de

- HDB uses its technical competence to support the modernisation of energy, buildings and transport infrastructure
- Contribution to the initiative "Circular Economy in the Construction Sector"/ "Kreislaufwirtschaft Bau", which voluntarily publishes relevant information on material flows in the construction sector on a regular basis
- Contribution to the work of the Round Table "Sustainable Construction" of BMVBS

German Electrical and Electronic Manufacturers' Association/ Zentralverband Elektrotechnik- und Elektronikindustrie e.V. (ZVEI)

http://www.zvei.org/Seiten/Startseite.aspx

- The German Electrical and Electronic Manufacturers have strongly invested in the research and development of resource efficient technologies
- The sector pays attention to the whole value chain, including the take back or return of used products to further treatment and or recycling
- The products of the sector can contribute to resource efficiency in other sectors of the economy

German Sustainable Building Council/ Deutsche Gesellschaft für Nachhaltiges Bauen (DGNB)

http://www.dgnb.de/en

- DGNB is certifying buildings according to generally accepted and ambitioned sustainability criteria, including criteria of RE

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German League for Nature, Animal Protection and Environment/ Deutscher Naturschutzring (DNR)

http://www.dnr.de/about-us.html

- DNR is providing much information on political processes, actors and facts on its websites and has issued fact papers on different relevant topics, as resource efficiency or waste management
- DNR is taking part in networks as in public and expert discussions that include RE-policy

Industrial Union of Metalworkers/ Industriegewerkschaft Metall (IG Metall)

http://www.igmetall.de/cps/rde/xchg/internet

- Unions and work councils play an active part in the discussion in enterprises. Their role is crucial for the improvement of production processes and increasing RE. IG Metall has organised workshops and conferences to promote resource efficient practices in the production sector
- Development of a guideline for RE in enterprises in cooperation with BMU

Nature and Biodiversity Conservation Union/ Naturschutzbund Deutschland e. V. (NABU)

http://www.nabu.de/en/nabu

- NABU is taking part in networks as in public and expert discussions that include RE-policy
- NABU is contributing to standardization processes with its expertise

PlasticsEurope Deutschland e.V. (PED)

http://www.plasticseurope.de

- Plastics can contribute to RE by substituting less efficient materials
- The industrial actors in the sector are supporting the resource efficient end-of life treatment of plastics

Rationalisation and Innovation Centre of the German Economy" (RKW - Rationalisierungs- und Innovationszentrum der Deutschen Wirtschaft e.V.)

http://www.rkw.de

- RKW is offering consulting services to small and medium-sized enterprises to improve their ability to compete on the market. One focus lies on material efficiency, another one on energy efficiency
- Qualification courses for RE-consultants
- Information sheets and guidelines, best practice information, regional projects, online platform, conferences and workshops

Verbraucherzentrale NRW e.V. (consumer advice centre of North Rhine-Westphalia)

http://www.vz-nrw.de/home

- Resource efficiency is a core element of the environmental consulting service of VZ NRW. This especially applies for raw materials and energy efficiency

3.4.5. Networks (e.g. Resource Efficiency Network)

Bavarian Centre of Competence in Environmental Technologies and Affairs/ KUMAS - Kompetenzzentrum Umwelt e. V.

http://www.kumas.de/ShowPage.php?PId=1&LangId=1&NavLang=1

- KUMAS is the central platform for the exchange of information, ideas and experience and cooperation among environmental companies and institutions in Bavaria

Efficiency Network Rhineland-Palatinate/ Effizienznetz Rheinland-Pfalz - EffNet

http://www.effnet.rlp.de/Startseite

- Effnet is the central information facility and communication node for all stakeholders, interested in the field of RE in RP
- Current projects: EffCheck-PIUS-Analyses in RP; combined heat and power initiative; support of the special fund "Energieeffizienz in KMU" of the German Credit Institution for Reconstruction (KfW) and different series of conferences

EMAS easy Network

http://www.emaseasy.de

- The EMAS easy Network supports small and medium-sized enterprises by providing appropriate environmental management tools for them. The aim is to establish environmental management systems leading to EMAS- and ISO 14001-eligible systems. The network is supported by several regional actors

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European Six Sigma Club Deutschland e.V. (ESSC-D)

http://www.sixsigmaclub.de/en/index.php

- ESSC-D provides a platform of know-how for Six Sigma, which is defined as product improvement. The platform provides and further develops quality standards for training and qualification, as well as certification methods
- Resource efficiency aspects play a role in these optimization tools. The actions are directed at companies and their staff. Projects are implemented and conferences as well as courses are organised

German enterprises' energy efficiency initiative / Deutsche Unternehmensinitiative Energieeffizienz e.V. (DENEFF)

http://www.deneff.org/cms/index.php/home.html

- DENEFF is a network of enterprises which provides information on energy efficiency in the German economy. It lobbies for ambitioned energy efficiency policies

German Recycling Technologies and Waste Management Partnership e.V. (RETech)

http://www.retech-germany.net/english/dok/616.php

- RETech is a partnership that unites stakeholders from the German recycling sector, who are active in the export market. It provides the possibility to exchange information and to communicate experiences and initiatives to possible partners

Modell Hohenlohe - Netzwerk betrieblicher Umweltschutz und nachhaltiges Wirtschaften e.V.

http://www.modell-hohenlohe.de/impressum/__Impressum.html

- Modell Hohenlohe organises the exchange of experiences, best practice and the dialogue on sustainable business solutions in south-west Germany for enterprises. For that purpose it organises efficiency round tables and provides information on projects and events on its website

Netzwerk Ressourceneffizienz (NeRess)

http://www.neress.de/startseite.html

- The network is open to all stakeholders in the field of RE. It organises conferences, provides information (website, newsletter) and gives the opportunity to exchange best practice. VDI ZRE has been commissioned by BMU to operate the network

PIUS Network

http://www.pius-info.de/en/index.html

- The aim of the PIUS Network "production integrated environment protection" – PIUS (Produktionsintegrierter Umweltschutz) is to improve production processes in terms of a more efficient use of energy, water, air and materials and to save costs at the same time

30 Pilot Networks for Climate Protection and Energy Efficiency/ 30 Pilot-Netzwerke für Klimaschutz und Energieeffizienz

http://30pilot-netzwerke.de/nw-de

- This initiative connecting existing networks is operated by the Fraunhofer group and its partners. The aim is to promote and to support existing networks, working in the fields of climate protection and energy efficiency

3.5. Norms and standards institutions

Who is determining the norms, standards and guidelines for Resource Efficiency in SMEs in the production sector?

3.5.1. Association of German Engineers/ Verein Deutscher Ingenieure (VDI)

http://www.vdi.eu/engineering/vdi-guidelines

- VDI 4597 – Framework guideline resource efficiency (in preparation)
- VDI 4598 – Resource efficiency in SMEs (in preparation)
- VDI 4599 – Cumulative raw material demand (KRA) (in preparation, not especially for SMEs)
- VDI 4600 – Cumulative energy demand (KEA) – Terms, definitions, methods of calculation (DE/EN, not especially for SMEs)
- VDI 4600-1 – Cumulative energy demand (KEA) – Examples (draft DE, not especially for SMEs)
- VDI 4601 – Environmental indicators for resource efficiency analysis (in preparation, not especially for SMEs)
- FA 208 – Resource efficiency in manufacturing (three guidelines in preparation)
- VDI 4070-1 – Sustainable management in small and medium-sized enterprises – Guidance notes for sustainable management
- VDI 4075-1 – Cleaner production (PIUS) – Basic principles and area of application
- VDI 4075-2 – Cleaner production (PIUS) – Painting processes
- VDI 4075-3 – Cleaner Production (PIUS) – Foundries industries
- VDI 4075-4 – Cleaner Production (PIUS) – Printing (sheet-fed offset)

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3.5.2. German Institute for Standardization/ Deutsches Institut für Normung (DIN)

http://www.din.de/cmd;jsessionid=129F769B94C7552CB5A93DE675FDDDB7.2?level=tpl-home&languageid=en

- At present no activities regarding standards on resource efficiency for SMEs, but implementation of a committee for the coordination of activities of DIN e.V. concerning resource efficiency in general
- Several standards with reference to resource efficiency in general, e.g. DIN EN ISO 14001,DIN EN ISO 14040, DIN EN ISO 14044, DIN EN ISO 14045, ISO TR 14062, etc.

3.5.3. German Association of Machinery Manufacturers/ Verband Deutscher Maschinen- und Anlagenbau (VDMA)

http://www.vdma.org/en_GB/der-vdma

- VDMA standardization sheets ("VDMA Einheitsblätter") exist for specific topics with reference to resource efficiency in a broader sense, e.g. 24247-1 – Energy efficiency of refrigerating systems – Part 1: Contribution on climate change, increasing energy efficiency, 24247-2 – Energy efficiency of refrigerating systems – Part 2: Requirements for system – design and components. But those sheets do not have the status of a standard in the narrower sense
- VDMA contributes to the Mechanical Engineering Standards Committee of DIN

3.5.4. Association for Electrical, Electronic & Information Technologies/ Verband der Elektrotechnik Elektronik Informationstechnik e.V. (VDE)

http://www.vde.com/en/Pages/Homepage.aspx

- The DKE, "German Commission for Electrical, Electronic & Information Technologies" is a common working group of DIN and VDE. The DKE is the German organization responsible for the elaboration of standards and safety specifications in the areas of electrical engineering, electronics and information technologies. But they seem to be of limited relevance for resource efficiency in small and medium-sized enterprises
- VDE issues guideline sheets as well, but these do not have the status of a standard in the narrower sense

3.5.5. German Technical and Scientific Association for Gas and Water/ Deutscher Verein des Gas- und Wasserfaches e.V. (DVGW)

http://www.dvgw.de/english-pages

- DGWV is setting standards in the gas and water sector. But they seem to be of limited relevance for resource efficiency in small and medium-sized enterprises

3.5.6. Other organisations

- Many other organisations such as the German Electrical and Electronic Manufacturers' Association/ Zentralverband Elektrotechnik- und Elektronikindustrie e.V. (ZVEI), contribute to the formulation of norms in Germany and on higher levels
- Many single enterprises are members of committees and working groups, to which they send representatives. Very often these groups work is sector specific and involves enterprises and associations from different countries
- The German Railways enterprise "Deutsche Bahn" (DB) is doing a lot of standardisation work as well, which seems of limited relevance to resource efficiency in small and medium-sized enterprises

3.6. Research institutes and think tanks

Which research institutes and think tanks are engaged in Resource Efficiency in the production sector?

3.6.1. Ecologic Institute

http://www.ecologic.eu

- Ecologic Institute is a private not-for-profit think tank for applied environmental research, policy analysis, and consultancy

3.6.2. Environmental Policy Research Centre (FFU) at the Freie Universität Berlin

http://www.polsoz.fu-berlin.de/en/polwiss/forschung/systeme/ffu/index.html

- FFU is a leading actor in Germany in policy research in the field of environmental economics

3.6.3. Fraunhofer Institute for Systems and Innovation Research ISI

http://www.isi.fraunhofer.de/isi-en/index.php?WSESSIONID=bfef81e0d322f096c9de9063fc63feb7

- Fraunhofer ISI is very active in technology and innovation research, especially in the field of resource efficiency. Many other Fraunhofer institutes are dealing with related questions as well, e.g. IWU, UMSICHT, MOEZ

3.6.4. GWS - Institute of Economic Structures Research

http://www.gws-os.com/de/content/view/83/72

- GWS is very active in macroeconomic modelling to assess the impact of policy options

3.6.5. Helmholtz Institute Freiberg for Resource Technology (HIF)

http://www.hzdr.de/db/Cms?pOid=32948&pNid=2588

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- HIF pursues the objective of developing innovative technologies for the economy so that mineral and metalliferous raw materials can be made available and used more efficiently and recycled in an environmentally friendly manner

3.6.6. IfaS Institute for Applied Material Flow Management/ Institut für angewandtes Stoffstrommanagement (IfaS)/ Hochschule Trier, Standort Umwelt-Campus Birkenfeld

http://www.stoffstrom.org/en

- IfaS consults private and public actors in all questions concerning material flow management and carries out research in this field

3.6.7. ifeu - Institut für Energie- und Umweltforschung Heidelberg GmbH - gemeinnütziges ökologisches Forschungsinstitut

http://www.ifeu.de/english/index.php?seite=startseite

- ifeu does a great deal of research concerning resource efficiency indicators. One example is its recent work for Eurostat to raw material equivalents of imported goods

3.6.8. Institute for Futures Studies and Technology Assessment (IZT)/ Institut für Zukunftsstudien und Technologiebewertung gemeinnützige GmbH

http://www.izt.de/en

- IZT does a lot of research at the interface of technologies and raw materials

3.6.9. Öko Institut e. V. Institute for Applied Ecology/ Institut für angewandte Ökologie

http://www.oeko.de/aktuelles/dok/544.php

- Öko Institut has a great deal of experience in different fields relating to resources. This encompasses political, technical, juridical and economical expertise in different areas, e.g. recycling and resource efficiency in the manufacturing sector

3.6.10. Ökopol Institute for Ecology and politics/ Ökopol Institut für Ökologie und Politik GmbH

http://www.eup-network.de

- Ökopol is very active in the field of energy and other resource efficiency labelling activities. It does not set standards by itself but consults national and European authorities in different fields of expertise

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3.6.11. Wuppertal Institute for Climate, Environment and Energy (WI)

http://wupperinst.org/en/home

- WI does a lot of research concerning, macroeconomic educative and sociological aspects of RE. It has an own database and created different indicators like MIPS and TMR.

3.6.12. University institutes and departments

- Many other institutes at universities, especially technical universities, are involved in research projects relevant to RE. Examples are the TU Berlin, the TU München, the RHTW Aachen, and the Uni Lüneburg etc.

3.7. Other actors and multipliers

Which other actors are multipliers to SMEs for Resource Efficiency in the production sector? (e.g. Suppliers, Tradesmen)

3.7.1. Deutsche Bundesstiftung Umwelt DBU/ Federal German Environment Foundation

http://www.dbu.de/359.html

- DBU grants funding for innovative exemplary projects with a special focus on small and medium-sized enterprises. Consortia linking actors out of different stakeholder groups – as academia, associations and business – are treated with preference. Projects have to relieve the environment of pressures, to be innovative and to be applicable in a broad range of applications
- DBU yearly awards the German Environmental Prize/ Deutscher Umweltpreis for the development of solutions, that release the environment from pressures of economic or societal activities

3.8. Economic clusters, regions and municipalities

Are there economic clusters, regions or municipalities that are particularly known for their initiative/ support concerning Resource Efficiency in SMEs? If yes, which ones are they and what are they famous for?

- In many commercial areas or business parks multiple forms of “industrial symbiosis” arise. That means that flows of material, energy or other resources that are not needed anymore in one enterprise are transferred to another enterprise, where they are productively used. Examples are numerous heating and cooling applications or systems that combine flows of data centres, swimming baths, cold storage rooms and other applications. Other examples include different forms of material flows
- Such cooperation arise in different stakeholder settings. The main condition for success is the mutual benefit to the actors involved. Numerous regions and municipalities are actively

involved in fostering such activities. Examples are the cites of Freiburg and Munich, where the municipal utilities are involved, the "Initiative Zukunft Harz" in Lower Saxony, the "EEnet Saar" in the Saarland, the Netzwerk Materialeffizienz Schleswig-Holstein, the „EnergieEffizienz-Netzwerk Thüringen (ENT)" or the "Landescluster Umwelttechnologien NRW"

3.9. Any additional comments

- The political awareness for resource efficiency has grown fast in the last years. Many existing activities have been fitted to this political trend. Many initiatives are subsumed under this notion that were initially begun to foster sustainability in general or climate protection or other environmental or economic aims. This seems legitimate, as many of those activities do actually increase resource efficiency simultaneously

4. Instruments/Tools

4.1. Support structures (awards, EMAS)

Which support structures exist to highlight resource efficient approaches in SMEs? (e.g. Awards, EMAS)

4.1.1. German Raw Materials Efficiency Prize/ Deutscher Rohstoffeffizienzpreis

http://www.deutsche-rohstoffagentur.de/DERA/DE/Rohstoffeffizienzpreis/rep_node.html

- The prize is awarded to small and medium-sized enterprises, that have developed resource efficient modes of production or products

4.1.2. Efficiency Prize NRW/ Effizienzpreis NRW

http://www.efanrw.de/index.php?id=598&L=0

- The prize is awarded to enterprises, that have developed a resource efficient product

4.1.3. Environmental Prize of Baden Württemberg/ Umweltpreis BW

http://www.um.baden-wuerttemberg.de/servlet/is/11067/

- The prize is awarded to enterprises, that have developed resource efficient modes of production or products

4.1.4. German Environmental Prize/ Deutscher Umweltpreis

http://www.dbu.de/343.html

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- The prize is awarded by the DBU for the development of solutions, that release the environment from pressures of economic or societal activities

4.1.5. Prize Environmental Enterprise Free Hanseatic City of Bremen / Preis Umwelt Unternehmen Bremen

http://www.umwelt-unternehmen.bremen.de/preis_umwelt_unternehmen_Nordwest_-_der_Umweltpreis_fr_Bremen_und_den_Nordwesten.html

- The prize is awarded to enterprises, that have developed resource efficient modes of production or products

4.1.6. Environmental prize of the crafts chamber of Chemnitz/ "Umweltpreis der Handwerkskammer Chemnitz"

http://www.hwk-chemnitz.de/Preistraeger-des-Umweltpreises-2012.838.0.html

- The prize is awarded to crafts enterprises, that showed a very good environmental performance in one area, e.g. RE

4.1.7. Eco-Management and Audit Scheme EMAS

http://www.emas.de

- EMAS allows a certification of environmental qualities of enterprises. It is implemented by the German EMAS Advisory Board/ „Umweltgutachterausschuss" (UGA) in Germany

4.1.8. Environmental management according to ISO 14001

http://www.14001news.de

- Many organisations in Germany promote the application of ISO 14001 environmental management schemes. They allow a certification of environmental qualities of enterprises

4.1.9. Best Practice Information

- Many of the above mentioned organisations, agencies, networks and ministries highlight specific resource efficient approaches in SMEs on their websites, in publications and on conferences. Such examples are available for every industry sector and in different formats

4.2. Other specific tools and instruments

List existing instruments/ tools that are used to improve Resource Efficiency in SMEs (please indicate whether instruments are used by private actors, public actors or both)

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Consultation services

- Consultation services, especially for small and medium sized enterprises apply to all categories mentioned below. They are offered by public or by private actors. They include a wide range of possible formats: online competence platforms, consulter pools and programmes, targeted campaigns, guidelines and other documents

Public (co-)funding for research and development projects/ implementation projects

- Innovation funding and the public support of green products, the development of green markets and resource efficient modes of industrial production are a widely used instrument (see above, activities of the public actors). Research projects concerning the three core aspects of resource efficiency – material savings while maintaining the same benefit, recycling and substitution – are of importance in all categories mentioned below. In most cases private and public actors finance such projects cooperatively, but many projects are financed only by one actor category as well

Public actors use economic instruments to incentivise resource efficient production modes and the production of resource efficient products

- The framework conditions that the fiscal system is setting for market decisions are a crucial aspect for resource efficiency in the economy. They apply to all categories listed below

Regulative instruments

- They are used by public actors to set minimum standards and to ban certain practices in economic and societal activities. Numerous regulations apply in different sectors of the economy. One example is the German “Immissionsschutzrecht”

4.2.1. Related to production processes

VDI ZRE resource checks (paid by a public actor, operated by a private actor)

http://www.vdi-zre.de/ressourcenchecks

- Resource checks are modular structured checklists to support SMEs in increasing the efficiency of production processes. They are structured into a questionnaire and a detailed checklist. Measures, tools and methods are provided for complementary support
- Resources exist for the following technology areas: Basic version, metal Industry, injection moulding, extrusion, electroplating, foundry, painting, machining, hot rolling, cold rolling, building sector
- Main target group: SMEs

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VDI ZRE process chains (paid by a public actor, operated by a private actor)

http://www.vdi-zre.de/prozessketten

- Systematization with process chains allows a structured access to relevant information about resource efficient technologies. They promote a quick introduction to the state of the art in research and technology
- Process chains contain the following information about processes: Short descriptions of technologies and saving potentials, R & D projects with detailed project reports on resource efficiency technologies, best available technology, good practice examples, and short videos if available. Process chains exist for the following technologies: electroplating, injection moulding, extrusion, foundry, painting, machining, hot rolling, cold rolling
- Main target group: SMEs

VDI 4070 (private actor) – Sustainable management in small and medium-sized enterprises – Guidance notes for sustainable management

http://www.vdi.de/4070

- VDI-guideline that describes the introduction of a management system for small and medium-sized enterprises
- Main target group: SMEs

Material flow management (both public and private actors, mainly private actors)

- Target-oriented influencing of material flows to reduce the amount of material, to intensify use, to reduce emissions, to ensure recycling as far as possible; material flow management aims to environmentally and economically efficient improvement of material flows.
- Starting point is a comprehensive material flow analysis
- Target group: Manufacturing trade, SMEs

Sankey diagrams (both public and private actors, mainly private actors)

- Sankey diagrams visualize costs or energy and material flows of processes. They support the visualization of results, e.g. of a material flow analysis, and the determination of efficiency potentials
- Target group: Manufacturing trade, SMEs

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MFKR – Material flow cost accounting – DIN EN ISO 14051 (both public and private actors, mainly private actors)

- Material flow cost accounting is a method for identifying inefficiencies in the use of materials in the production economy. It allows tracking of costs based on a physical quantity structure of energy and material flows in the company
- Target group: Equally suitable for application in the manufacturing and process industry, SMEs

Produktionsintegrierter Umweltschutz (PIUS) (mainly private actors)

http://www.vdi.de/4075

- The guideline VDI 4075 is intended for mainly small- and medium-sized enterprises (KMU) in the service and production sector who wish to access information about and experiences with Production-Integrated Environmental Protection (PIUS) in their efforts to modernize or design production processes and facilities
- PIUS bases on a detailed, process oriented input-output-analysis. It aims at reducing costs, saving the environment, optimizing quality
- EFA NRW carried out about 1100 PIUS projects within the last twelve years.
- Target group: SMEs

4.2.2. Related to products

MET Matrix (both public and private actors, mainly private actors)

- Ecodesign method. The MET matrix is a means of organizing an analysis of all the types of environmental problems that a product could cause. The principle behind a MET matrix is that it establishes an environmental profile of a product by analysing the product throughout its entire life, using the product lifecycle as a basis
- Target group: Product development

Ecodesign PILOT (mainly private actors)

http://www.ecodesign.at/pilot/ONLINE/ENGLISH/INDEX.HTM

- Ecodesign PILOT aims at the improvement of the environmental performance of products, and the reduction of costs
- Target group: Product development

- More generally one could talk of “environmental” or “resource efficient product design” (both public and private actors, mainly private actors). This has to consider the whole life cycle and all relevant resource and impact categories, to avoid burden shifting. A well-

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known instrument in this realm is the Ecodesign-Directive of the EU and the regulations for its implementation. Different foot printing methodologies have been developed for that purpose, some are still under preparation (see above)

- The producers' product responsibility is an important field of action, when products are to be designed in a resource efficient manner (public actors set the rules, private actors find solutions to implement them). Especially its recyclability can be optimised by this instrument. In Germany the producers' responsibility is implemented for different product flows, e. g. packaging material, batteries, electronic devices etc. It has been implemented in a general form, not in the form of an individual producers responsibility, which would mean that the producers have to collect only the products they produced themselves
- Collection infrastructure is a very important condition for industries, to get sufficient input material in a high quality to support significant recycling activities (public actors, sometimes private actors, too)
- Another point, which is linked to recycling is the quality of regulations and implementation of the export of used products. Often products are exported after use and are lost for high quality recycling in Germany. Public actors design policies to ensure, that only products are exported, that are really further used and that as much as possible products are available for high quality recycling after their use phase. This includes the availability of enough competent customs staff and effective border controls. Initiatives to set up standards for sound recycling and to certify recycling plants are linked to that field of public action, to which private actors, as Umicore, and research institutes, like Öko-Institut, contribute
- Public procurement is a very powerful instrument, that public actors can use to promote resource efficiency. If they explicitly tender for resource efficient products, this can have a significant impact on the production sector
- The extension of product guaranty time scales by regulation can benefit resource efficiency (mostly by public actors)

4.2.3. Related to the entire supply chain

MET Matrix (see above)

Ecodesign PILOT (see above)

- See also methodologies (as well as the corresponding tools and databases) to support the assessment of resource efficiency, which in principal consider the whole life cycle, e. g. DIN EN ISO 14040, DIN EN ISO 14044, VDI 4600 (both public and private actors, mainly private actors)

4.3. Labelling

Which resource efficient labelling exists?

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4.3.1. The Blue Angel

http://www.blauer-engel.de/en/index.php

- Awarded by UBA and BMU to products and services which are of considerable benefit to the environment and, at the same time, meet high standards of serviceability, health, and occupational protection
- Companies use the label to professionally promote their eco-friendly products in the market. It is to promote environmentally conscious consumption and is fanned out into special focus categories. One focus is resource protection

4.3.2. The Eco Index

http://www.o2online.de/handy/beratung-und-service/eco-index

- Assessment tool developed by private actors to help consumers to distinguish between environmentally more or less advanced products of the mobile phone market

4.3.3. Supermarket labels

- Many chains of super markets have developed own labels, that often among others concern resources as well. Examples are the label “Aldi One World” or the label of the Rewe Group “Pro Planet” (private actors)

4.3.4. Stiftung Warentest

http://www.test.de

- A very famous product label in Germany is “Stiftung Warentest” (private actor). The label often concerns energy efficiency of products in the use phase, but can concern other resource aspects as well

4.3.5. Verbraucher Initiative label directory

http://www.label-online.de/media/file/3.LabelOnlineE.pdf

- The consumers initiative “VERBRAUCHER INITIATIVE e. V.” gives an overview of different labels and evaluates them independently (private actor)
- About 400 different labels are covered. Many of them cover criteria relevant to resource efficiency

4.3.6. The German Sustainable Building Council/ Deutsche Gesellschaft für Nachhaltiges Bauen (DGNB)

- Certifies buildings according to generally accepted and ambitioned sustainability criteria, including criteria of RE (private actor)

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4.3.7. „Bewertungssystem Nachhaltiges Bauen für Bundesgebäude (BNB)“

- BNB allows to certify public buildings according to generally accepted and ambitioned sustainability criteria, including criteria of RE
- Managed by BMVBS (public actor)

4.4. Standards

Which standards regarding the measurement of Resource Efficiency exist?

4.4.1. For small and medium enterprises in the production trade

4.4.1.1. VDI 4598 – Resource efficiency in SMEs (in preparation)

4.4.1.2. VDI 4070-1 – Sustainable management in small and medium-sized enterprises – Guidance notes for sustainable management

4.4.1.3. Methodology for the Ecodesign of Energy-related Products

http://www.meerp.eu/documents.htm

4.4.2. For the production trade sector:

- See below (Concerning all (most) sectors)

4.4.3. Concerning all (most) sectors

- The following methodologies are almost independent of company size. The main focus is on the assessment of products (goods, services, product service systems). The methodologies are base on the analysis of process chains within life cycle

4.4.3.1. VDI 4597 – Framework guideline resource efficiency (in preparation)

4.4.3.2. VDI 4598 – Resource efficiency in SMEs (in preparation)

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4.4.3.3. VDI 4599 – Cumulative raw material demand (KRA) (in preparation, not especially for SMEs)

4.4.3.4. VDI 4600 – Cumulative energy demand (KEA) – Terms, definitions, methods of calculation (DE/EN, not especially for SMEs)

4.4.3.5. VDI 4600-1 – Cumulative energy demand (KEA) – Examples (draft DE, not especially for SMEs)

4.4.3.6. VDI 4601 – Environmental indicators for resource efficiency analysis (in preparation, not especially for SMEs)

4.4.3.7. DIN EN ISO 14040 – Environmental management – Life cycle assessment – Principles and framework

4.4.3.8. DIN EN ISO 14044 – Environmental management – Life cycle assessment – Principles and framework

4.4.3.9. DIN EN ISO 14051 – Environmental management – Material flow cost accounting – General framework

4.4.3.10. Product environmental footprint

http://ec.europa.eu/environment/eussd/smgp/product_footprint.htm

4.4.3.11. Methodology for the Ecodesign of Energy-related Products

http://www.meerp.eu/documents.htm

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